ILLINOIS

September, 1950

Poliomyelitis Symposium

Penicillin in the Treatment of Congenital Syphilis

(See page 5 for Table of Contents)

"Of 428 cases [of seasonal rhinitis and perennial rhinitis of allergic origin], 60% to 76% were benefited."

NOTE: A table, listing the results obtained in hay fever, shows that Hydryllin was used by ninety-seven patients and that 73 per cent experienced from 50 to 100 per cent benefit.

Gay, L. N.; Landau, S. W.; Carliner, P. E.; Davidson, N. S.; Furstenberg, F. F.; Herman, N. B.; Nelson, W. H.; Parsons, J. W., and Winkenwerder, W. W.: Comparative Study of Antihistamine Substances: III. Clinical Observations, Bull. Johns Hopkins Hospital 83:356 (Oct.) 1948.

In hay fever, asthma and other allergic manifestations, the clinical effectiveness of Hydryllin and its relative freedom from side reactions has been amply demonstrated. Hydryllin not only furnishes an active antihistaminic principle but also the stimulating, antiasthmatic and spasmolytic effects of Searle Aminophyllin.

HYDRYLLIN® DOSAGE FORMS

Hydryllin Tablets
Diphenhydramine (Searle).....25 mg.
Aminophyllin (Searle).....100 mg.

Hydryllin with Racephedrine HCl Tablets
Diphenhydramine (Searle).....25 mg.
Aminophyllin (Searle).....100 mg.
Racephedrine Hydrochloride.....25 mg.

Hydryllin Elixir
(4 cc. = ½ Hydryllin tablet)

Hydryllin Compound
(Cough Syrup Preparation)

HYDRYLLIN®

SEARLE

Research in the Service of Medicine

G. D. SEARLE & CO., CHICAGO 80, ILLINOIS

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The ILLINOIS Medical Journal

Official Journal of the Illinois State Medical Society

Harold M. Camp, EDITOR. Theodore R. Van Dellen, ASSOCIATE EDITOR.

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Vol. 98, No. 3 September, 1950

C. PAUL WHITE, M.D., PRESIDENT-ELECT

C. Paul White, M.D., of Kewanee was unanimously elected as President-Elect at the second session of the House of Delegates of the Illinois State Medical Society on May 25. Doctor White was born and raised at Brooklyn, Illinois, had his preliminary education at the Brooklyn schools, then attended Carthage College and the Western Illinois State Teacher's College in Macomb.

He was graduated from Northwestern University Medical School in 1915, and following his internship at Wesley Memorial Hospital, located in Kewanee, where he has maintained his practice to the present time. Doctor White has long been interested in the affairs of his state and county medical societies, and has been secretary of the Henry County Medical Society over a period of years. For the past several years he has been a member of the Educational Committee of the State Medical Society, has regularly attended all of the committee meetings, and has played an important part in the success of the committee throughout this period. He is a Fellow of The American College of Surgeons.

He was District Governor for the Kiwanis International, serving well in that capacity and making many talks during his term of office throughout the large district. Doctor White has been a member of the House of Delegates of the Illinois State Medical Society for many years, and has always been unusually interested in the many problems before this body, and has had many important assignments given him, all of which have invariably been well cared for.

In his speech of acceptance Doctor White assured the delegates that he would do everything at all times for the best interests of the Society and the medical profession of this state. He stated that in the next year as President-Elect, he would be ready to assist the President, and will support him in every way possible, that the year would be to him one of indoctrination. However, in his year as President, he will ask the support of the membership as a whole, and not be merely a rubber stamp. Those who have known Doctor White over a period of years are definitely of the opinion that he will carry on, as have those presidents who have preceded him in recent years.

MULTIPHASIC SCREENING

Multiphasic screening is being considered by some of our public health officers as a logical means for the control of chronic diseases. In this process, several tests are done at a single sitting to rule out a variety of diseases. It is a combination of quick and economical procedures in which blood is examined for sugar and syphilis, a chest x-ray is taken to detect tuberculosis, bronchogenic malignancy and cardiac en-

largement; then there are cytologic tests to detect early carcinoma of the cervix.

The public health physician hopes to economize on personnel and equipment by doing all of this under one roof. It is expensive to maintain a laboratory in one part of the town for the sole purpose of doing serological tests and, in another part of town, to do chest x-rays or maintain a cancer detection center. Through centralization the same personnel and facilities will be used and duplication avoided. Blood, for example, is withdrawn only once; half is used for serology and the remainder for blood sugar determination. There is no doubt that this plan would be an economical measure and, if put into extensive use, would uncover many significant diseases which might otherwise go undetected.

Our present tuberculosis and diabetic drives demonstrate this. On the other hand, it is difficult to know where public health stops and private practice begins, or vice versa. In our opinion, it is not a public health measure and only through the greatest stretch of imagination can it be considered the prevention of chronic diseases and therefore preventive or public health medicine. This is food for thought, however, and controversial.

The plan, as it exists, is so limited in scope that other diseases must be added in the future. It is inevitable, therefore, that the program will enlarge. Suggestions have been made already to add hemoglobin determinations, albumin tests of the urine, blood pressure, weight, height, vision and audiometric tests. There is also a plan to include a short history. In our opinion, the plan extends beyond the limits of public health when it performs these functions. This is diagnostic, not preventive medicine.

Many of the wisest physicians of a decade ago complained when the public health officials started their blood testing stations and intensive treatment centers. They saw the handwriting on the wall and considered the move to be an attempt by the government to enter the field of clinical medicine. After all, under the disguise of preventive medicine, blood testing soon was followed by a course of treatment. Public health found rationalization in this move by replying that early treatment prevents late complications. All of this is true but where do we go from here?

The same could be said of diabetes and almost any disease if we consider the flexibility of the word prevention. Is the early detection of heart enlargement a form of preventive medicine? Yes. But the average physician would like to think of prevention as beginning much earlier than this. True, prevention is related more closely to the variations of cause and etiology. It is here that the public health department can be of great help because of its close association with government and lawmaking agencies. Prevention starts earlier. Lung cancer, for example, goes back to smoking or inhaling irritating substances. Why not start here instead of detecting the disease early?

There is a difference and the difference is keenly felt by the practicing physician. After all, he has these facilities at his disposal. The practicing physician has no objection to multiphasic screening, but he believes that it should be done by those who are best equipped to do the job.

Logically, this should be the responsibility of the physician who is in practice and in daily contact with the sick. But we should not be blind to the fact that multiphasic screening can be popular and unless we take the initiative others will. It requires planning and equipment and the sooner we start the better! Public healthers already are beginning to find measures and some claim that the procedure is warranted because the routine periodic examination is too expensive and requires from one half to two hours. They forget that multiphasic screening also will be expensive especially when it includes everything necessary for completeness.

ELMER L. HENDERSON, M.D., PRESIDENT OF THE A.M.A.

Elmer L. Henderson, M.D., of Louisville, Kentucky, was installed as president of the American Medical Association at the annual meeting held in San Francisco, on the evening of June 27, 1950. For the first time in the history of the A.M.A., the important function of installing a new president was broadcast over a national radio chain.

Louis H. Bauer, M.D., as Chairman of the Board of Trustees, made the introductory remarks, and administered the oath of office to Doctor Henderson, this likewise for the first time. After taking the oath of office, Doctor

Henderson gave the president's address on "The Responsibility of American Medicine." This fine address was published in the July 1 issue of the *Journal of the American Medical Association*, and it should be read by every physician in this country.

At this same session, all of which went over the nation wide radio chains, Ernest E. Irons, M. D., *as the retiring president, gave a short* address, which was well presented. Doctor Irons, assuming the office a year previously, has had unusual responsibilities, and has travelled throughout the entire nation during his term of office. We were informed that Doctor Irons in travelling hundreds of thousands of miles in his defense of American medicine, actually made more than 80 addresses during the past year.

Doctor Irons, like Doctor Henderson, assumed the important position as president of the largest medical organization in the world, at the most critical period which any president of the A.M.A. has ever faced. The position of president of the American Medical Association is one which should not be considered too lightly, and in assuming it the incumbent invariably has a busy year ahead of him. Those who have known Elmer Henderson and have observed his many activities for the interests of the medical profession have the utmost confidence in him, and are sure that he too will carry on in a trying year, and do everything humanly possible to aid in the perpetuation of American medicine as a private enterprise.

As an integral part of the American Medical Association, this Society, like all other state and territorial societies and associations, greet the new president, and will give him a definite assurance of their desire to work with him for the common aim of the profession as a whole, to give adequate care to all the people at a cost which they are able to assume, likewise for the best interests of the citizenry, to continue to oppose efforts to make the provision of medical care a function of government.

Tuberculosis is preventable and eradicable. In the United States it causes one death every nine minutes. Illinois needs 3000 additional sanitarium beds.

HISTORY COMMITTEE PROGRESS REPORT

Material for the History of Medicine continues to come in slowly. Recently Dr. W. R. Roberts of Watseka sent in a History of Iroquois County with photographs of a number of early doctors. Dr. James H. Rutledge of Pike County recently sent in a complete list of the practitioners in that county.

Dr. Morris Fishbein is writing a history of medical publications in Illinois. His daughter — the wife of Dr. Morris Friedell — was a member of the Auxiliary committee which accumulated the data regarding these things. It makes a father-daughter team out of this endeavor.

Jack Neal is writing on the legal side of medicine and doctors and the law.

Dr. Oscar Hawkinson is writing the story of neuropsychiatry.

The Committee needs more material from county societies and histories of more counties and county societies.

We are proceeding slowly but inexpensively.

PROGRESS REPORT ON AMERICAN MEDICINE

Address of President Ernest E. Irons Before the House of Delegates, American Medical Association, San Francisco, June 26, 1950

Physicians of this nation are deeply concerned with the prevention of sickness and injury of all our fellow citizens. The care of the sick, the prevention of disease and the alleviation of suffering are the center, the impelling motive, the inspiration, around which are built all the activities of the medical profession. The universally recognized accomplishments of medicine by the combined efforts of research and the application of new knowledge in careful and intelligent practice have been attained in a nation of free enterprise and, in the past, sound economy. The problems of medicine are closely integrated with the economic and social conditions of our people. They are mutually interdependent.

The application of science and discovery make possible continuous advances and new achievements in prevention and control of disease —

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better medicine. There are, however, inherent limitations in medicine; physicians cannot create bodily immortality. Death cannot be prevented; it can only be postponed. All that the physician can do about death is to change age and cause. Proponents of nationalized medicine seem to assume that there is some absolute standard of medical practice and talk glibly of "adequate" medical care as if they could set a standard and a limit to medical progress. Medicine is not static. With other men here, I have seen changes in medicine in the past 50 years, during which time what was regarded as good medical practice has become entirely inadequate today. By the very nature of medical progress, it can never attain perfection, because the goal moves ever in advance. One thing is certain, however, you cannot improve medical care simply by setting up a uniform assembly line system — which always has and always will make it worse. Already in England there is now being advertised private insurance to protect against the dangers and delays of government care. This indicates that even in Socialist England the people are finding that they must turn again to private enterprise, to protect themselves against the evils of socialism.

This development in England is so significant that I wish to read a few sentences from an advertisement of the British United Provident Association which appeared in the *London Punch*, May 10, 1950.

"Which would you choose in the event of illness? Private treatment or the General Ward!

"The National Health Service ensures that everyone receives medical and, if necessary, hospital treatment in the event of illness or operation.

"To many people, however, the necessary formalities, the waiting and, finally, treatment in a general ward, are disconcerting both in anticipation and in practice.

"In view of the fact that serious illness or the need for operation so often strikes without warning, it is no more than obvious wisdom to safeguard yourself and your family without delay. . . ."

We as physicians are resolved that the continuation of the marvelous progress in America shall not be thwarted or diverted by the introduction of a foreign ideology which, as in past decades, now elsewhere before our eyes, is destroying the quality of medical care and delaying the correction of obvious faults. We are well aware of the social and humanitarian necessity of provision for the health care of the indigent and the victims of ill fortune whose plight is due to both economic and medical factors. In former days this was accomplished by local communities and more recently by many excellent city and state aid programs, to which physicians already have given personal and professional support. This aid can be supervised best under local administration, and it then can reach the needy without being diluted by the impositions encouraged by socialistic promoters of the welfare state. We already have achieved in this country the best medical care in the world.

Last month we were favored by the pronouncement of a spokesman for the political backers of government medicine to the effect that now they would be pleased to give up the program for compulsory sickness insurance if medicine could offer any other solution for improving the medical care of the nation. This is an official confession of the bankruptcy of the program plaintively described as "so close to the heart" of their political leader. Recent political events have no doubt played some part in recasting Act II of this modern political Comedy of Errors. An intelligent expansion of sound and helpful programs will succeed without unnecessary national legislation. We shall do best by encouraging more individual responsibility, more self help and fewer treacherous governmental crutches, more honest statements of fact and less deliberate deception and playing with the truth, more willingness to work and less national political tinkering.

OUR MEDICAL AND ECONOMIC PROBLEM

The objectives of medicine and their relation to our entire American economy are now much better understood by the people of this country than at the outset of our educational campaign. Let us review the progress of this critical fight of medicine and of all patriotic groups to defend our America from the external and internal attacks of socialism and its twin, communism. Prior to two years ago the insidious growth of socialistic practices promoted in the name of social and economic welfare had placed businesses, medicine and even legitimate government on the defensive. In this gigantic malignancy a few

ambitious but unscrupulous men did not hesitate to falsify statistic and sow seeds of discontent and distrust, audaciously using the familiar Marxian technic of the "misery of the masses" in a country the people of which are better fed, more prosperous and more productive than in any nation in history.

The subjugation of medicine to political purposes has always been an early objective in the promotion of the socialist welfare state. Nibbling at the personal responsibility, initiative and freedom of the individual by supposedly innocent and superficially attractive welfare measures went on for years without much opposition. Physicians and others interested in the welfare of the public failed to recognize this process of undermining the originally strong pioneer spirit of our citizens. As professional men and as citizens we fail to realize the gravity of this attack on the moral foundations of our country. After the preliminary softening of the national fiber by alleged temporary welfare promises and benefits, the direct attack on medicine was intensified and medicine found itself in the front line in defense not of medicine alone but of the American way of life.

THE OFFENSIVE

Now, after two years, the real threat of socialism is better understood by our citizens, and physicians together with other patriotic groups are on the offensive. Much of the previous national inertia which affected business and labor groups as well as medicine has been overcome. Thousands of nonmedical citizens and leaders, at first impressed by the false premises of arguments for compulsory sickness insurance now realize its inevitable destructive effects on quality of medical care, on the independence of the American citizen and on the economic stability of the nation. Still others, though now informed, unfortunately hesitate to "lose face" by admitting that they were deceived. Members of the medical and allied professions are better united in understanding and in purpose than ever before and are determined that there shall be no shackling of medicine and no compromise with the evils of socialism.

A vigorous campaign for voluntary insurance by medically sponsored groups and by commercial insurance companies has brought hospital insurance to more than 68 million, and protection against surgical costs to 40 million and for medical costs to 16 to 18 million persons. Sixteen thousand persons are being added daily to those participating in voluntary health insurance plans. Meantime the professional accomplishments of the medical profession in the prevention and cure of disease have proceeded apace with continuing reduction of illness and lowering of death rates. This progress will be still more rapid when we have disposed of this socialist threat to America.

The general public has been made increasingly aware of the dangers of socialized medicine and socialism, and resolutions in opposition to compulsory health insurance and in favor of voluntary health insurance have been adopted by more than 10,000 organizations. More than 6,600 are nonmedical and include farm bureaus, the American Legion, civic and women's clubs, religious groups, insurance groups and other professional organizations. This is indisputable evidence of the disgust of thinking persons across this land, independently of the political parties, for the insidious socialistic programs which will cost the average man more in taxes than he can receive in benefits.

CONFUSION

A few months ago it became evident that a bill for the nationalization of medicine could not pass this Congress, and so the program of its proponents was changed and an attempt was made to introduce further fragments of socialism by means of small federal contributions to this or that new welfare agency. A number of such bills were introduced carrying almost no financial commitment, obviously intended to set up a pattern — a foot in the door — so that later these little bureaucracies could grow. In other bills it has been proposed to give federal aid to projects which affect many phases of our economic, educational and medical life. Sometimes these proposals are urged on the basis of alleged need and at other times recommended as progressive social projects, often with the disclaimer of any present intent of local interference by government bureaucracy. No mention is made of the Supreme Court decision of 1942, which asserted the right of government "to regulate that which it subsidizes."

The American people would not now accept socialism as a substitute for our American democracy. However, there still is much confu-

sion in the minds of the public and of many physicians as to the importance of the so-called fringe bills. For the past 15 years the American people have been conditioned to the gradual growth of welfare projects not only in medicine but in other fields of attemped economic planning, which historically in other nations have always ended in economic dictatorship. Economic planning and welfare projects have been promoted as devious alternative measures in preference to meeting economic and social difficulties on the basis of individual responsibility and promoted as devious alternative measures in preincentive of each citizen.

Responsibility for the social welfare of our people, in which all physicians as well as public-spirited citizens are deeply interested, has been gradually shifted from the local community and the state to a federal bureaucracy on the fallacious ground that only federal government could take care of exaggerated claims of alleged tremendous gaps in social and medical care. Great advances in medical and social care already made at state and local levels are interfered with by severe taxation of a wasteful federal government which always exacts an excessive brokerage for the support of the ever growing bureaucracy parasitic on each project. Thus the public and the medical profession have been conditioned to progressive steps which tend to remove from group after group of our citizens the necessity of personal effort. This process of softening and regimentation, whether by direct subsidy or by federal loans to small businesses, has been tolerated by this nation more readily following its temporary regimentation by total war.

A welfare measure, superficially attractive and perhaps relatively innocent in itself, forms a precedent; it is then easy to add a further welfare measure on the supposition that it is similar and perhaps complementary to previous legislation. Thus it is not surprising that many physicians and other thoughtful groups find it difficult to determine where such legislation should stop. This difficulty is also encountered by members of Congress who in the past have taken positions of compromise, which no doubt were strategically expedient at the time but which have persisted to plague those who now see the entire economic and social picture more clearly. A number of laws with a socialistic trend were formerly favored by members of the Congress before they had opportunity to think things through.

The only sound and consistent position for American medicine and the American people is that of opposition to any measures related to the progress of the socialist welfare state. Worthy objectives have been habitually used to camouflage national proposals essentially dangerous to our medical, social and economic well-being. These objectives can be attained more safely and effectively by local and state efforts after appropriate thorough education of the public.

The offensive battle of the medical profession, in addition to outspoken opposition to the socialization of medicine and the socialization of America, must include opposition to fringe bills. We must clear our thinking from the muddle in which it has been placed by the insidious growth of welfare measures of the past 15 years, many of which were surreptitiously planned as steps toward socialism. Help for the needy and distressed can be supplied without destroying their individual freedom and subjecting them together with their fellow citizens to slavery of the police welfare state.

The successful program of local and state service to the sick and needy must not be nullified by dominating interference of selfish federal bureaucracies. Programs for preventive medicine must be advanced and not diverted by the destructive effects of socialized medicine on the quality of medical service to the public.

NATIONAL SOLVENCY

Medicine will flourish and progress only in a sound economy. Our efforts, therefore, must concern not only the interests of good medicine but also the maintenance of free enterprise and solvent finance in American life. We must labor to maintain the personal freedom and initiative of our citizens. Our funds then will be available to help the needy and improve the conditions of other citizens by local measures; citizens will not lose their initiative and sense of personal responsibility to the state. In this national emergency, whether physicians or business men or farmers or laboring men, we must not be guilty of cowardice or unwillingness to stand up and be counted. We shall have to oppose even some of our medical friends who have

been deceived by the rosy red picture of the welfare state.

This is not a partisan political fight; it is a crusade in which every right thinking doctor who values freedom of opportunity, free enterprise and the maintenance of high standards of medical practice must join.

You, the members of this House of Delegates, represent all the states in th Union. It is by your efforts and influence that every doctor can be shown the part which he must play in the present crisis. We as physicians have traditionally shunned political activities. During war physicians have always joined in efforts to save our republic. Now is the time again to come to the rescue of our country, this time to help save it from socialism.

Physicians in every community must accept and take on the responsibilities of citizenship. First they must register and then vote. A survey taken recently disclosed that 13 per cent of physicians in the localities surveyed were not registered; in fact, 22 per cent did not vote. In this respect they are not different from other well meaning and patriotic groups; for example, 26 per cent of bank employees and executives were not registered and 32 per cent did not vote. The same survey revealed similar figures for pharmacists and ministers and for members of chambers of commerce.

We, as physicians, must pause in our practice long enough to inform ourselves of the issues which confront our country. We must realize that the country is being undermined by treacherous proposals initiated in the name of doing good. We must take an active part as citizens in our government. The problem is simply stated: Compulsory health insurance is socialized medicine despite recent frenzied political efforts to escape the issue. To socialize medicine is to socialize America. The effectiveness of our city, county and state aid programs for the needy and indigent, the further development of preventive medicine, the rapidly growing professional and commercial voluntary insurance against the financial hazards of illness, the multitude of fraternal and religious charitable and self-help agencies, must not be jeopardized and ruined by the imposition of deceptive and wasteful socialistic proposals advanced by those who hope to profit politically at the expense of the freedom of the American citizen.

Do we as a people wish to rush down the socialist road after Great Britain? The answer obviously is "no," but we must present forcefully our convictions. We as physicians and citizens shall not relax until, with other patriotic groups in business, on the farm, in the other professions and labor, we shall have rolled back the socialist flood that threatens to engulf our American freedom and our solvency.

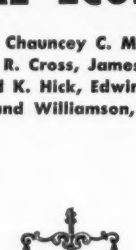
As I conclude my year of service as President, may I thank you again for the honor you have done me, for your own efforts in our crusade and, most of all, for your support, which has made a trying and difficult year much easier. Among the compensations have been the cooperation of the general medical profession and the unity of physicians and of other patriotic groups in our fight to maintain freedom of medicine and freedom of America.

HYPERTENSION AND THE MIND

I do not hesitate to tell my patients whom I refer for psychiatric study that emotional difficulties are very common in hypertension, either as a causative or aggravating influence or both, and that it is important that they see someone especially trained to unearth these emotional difficulties and to determine to what degree they influence the hypertension. I have yet, after such an explanation, to have a patient refuse to go to a psychiatrist and have yet to hear of one who regretted the consultation. *Excerpt: Hypertention, Edward T. Brading, M.D., Johnson City, Tenn., Journal of the Tennessee State Medical Association, June, 1950.*

MEDICAL ECONOMICS

The Medical Economics Committee. Chauncey C. Maher, Chmn., Hubert L. Allen, Carroll Birch, Thomas C. Browning, Roland R. Cross, James Graham, George Halperin, Edwin S. Hamilton, Eugene A. Hamilton, Ford K. Hick, Edwin F. Hirsch, John Mart, Jay McDonald Milligan, Holland Williamson, John R. Wolff.



The Basic Economics of Obstetrics

There is no lonelier person in the world than that important senior obstetrical resident on the second day following the termination of his residency. The obstetrical ward is still in existence and the new senior resident has just successfully performed his first breech extraction. Our ex-resident's assets consist of his wife, a three months old daughter, a sick mother-in-law, and a shiny new office. He does not have a patient. One week later he is beginning to wonder just how people do become pregnant. Five weeks later it happens, his first maternity patient arrives. The sister of his former interne. He is in business.

Ten years have elapsed and what has happened to our former ex-resident? Here he is now, sleeping in the doctor's room. It is eight a.m., and he has been up all night again; a multipara has just delivered, another girl aborted, and Harry George called him to help with a manual removal of the placenta. He looks pretty tired, because he hasn't had a solid night's sleep in four nights. He doesn't seem to be resting well either; after all he must prepare that paper concerning his research work for the Illinois Medical Journal, a talk on the management of prolonged labor for the County Medical Society, and only three medical meetings to attend this week.

How did this success come about? Our boy had what it takes! Within his soul was the spirit of the good physician. He wanted to help people and he liked to work. His greatest joy was to share in the pleasure of the creation of a new life, and to see the mother return to perfect health. Tragedy only increased his desire to do more, and withal he remained humble, and trusting to faith.

He soon learned that the question of what to charge for his obstetrical services was minor and really insignificant. The value in cold cash depended solely on two factors: the usual fee for such services in his community, and the patient's ability to pay it. This latter was the most important of all. Having a baby was a young person's game, and most young people had as little money as our struggling doctor. But fortunately there were lots of young people, and most did not stop at just having one baby. So the job was merely to attract enough young people to him.

To do this he found that he had to give his

patients that extra something. He became a good listener. He established "rapport," learned all he could about his patients as to how they reacted to both health and disease. He concerned himself about their family problems, their work, their play, their hopes, and of course their fears. He was never in a hurry, and a patient's telephone call was treated as a major event.

During the prenatal course our Osler never frightened his patient. He always acted as if he were sure of himself and suggested an aura of "all is well" or that "with my suggested treatment it soon will be."

During labor he was sympathetic, encouraging, and concerned about relieving pain. He followed the good principles of conservative obstetrics, and at this time his prime concern was the health of both mother and baby.

After delivery he remained interested in the complete welfare of his patient. He did not throw the baby into the arms of the pediatrician, but remained actively concerned. He encouraged postpartum office visits until the patient was completely recovered from her obstetrical event, and then advised yearly examinations.

And all this for a moderate fee well within the patient's budget. His philosophy that it was better to undercharge many patients, than to create a hardship by overcharging one, soon paid off. His fee was always standard to that expected by the community. He explained this question of fee at the first prenatal visit. He learned to trust people just as they trusted him. He stuck to his fee regardless of the nature of the case. He found that patients didn't understand the meaning of complications and extra skill or major obstetrical procedures. They just wanted a baby and a healthy mother and expected to pay a certain fee regardless of the work involved.

So he continued to give service and render skill. And all in a willing and friendly spirit. Patients found it a pleasure to pay his fee promptly and without argument. He was busy delivering babies to people in all walks of life. His practice was large, his knowledge increased, and his love of people blossomed.

He was friendly to all doctors. He gave advice only when asked, yet was always available. When in consultation he remained humble, let his colleague keep in the limelight and governed his fee by the suggestions of the attending doctor.

He realized his duty to other physicians by working with and for his local medical society. He continued to study and advance with his specialty.

He realized his duty to himself. He learned to take advantage of the slack periods on the Stork's assembly line with proper relaxation and vacations with his family, and carefully nurtured both his physical and mental well being.

By practicing such a philosophy our man not only became the good physician, but he maintained this status by continuing to keep his feet on the ground and to wear the same size hat.

Anyone can succeed as well as our ideal would be follow the same basic philosophy. The basis of economics is to supply the demand. And the demand for a good doctor, skillful, honest, and interested in the patient as a human being will always be present. This demand is so great that no socialization will ever replace the desire of the patient to have her own doctor when she needs him. And the good physician will always be there.

CORRESPONDENCE

SURGEONS WILL MEET IN CLEVELAND

The Fifteenth Annual Assembly of the United States Chapter of the International College of Surgeons *will be held in Cleveland, Ohio,* October 31 to November 3, with headquarters at the Cleveland Hotel.

Surgical clinics will be held in several Cleveland hospitals on Monday, October 30. All scientific sessions will be held at the Cleveland Public Auditorium 9:00 a.m. to 5:00 p.m. Tuesday through Friday. *A most excellent program* has been arranged at which time some of the *most prominent surgeons of America, and some* foreign speakers, will discuss the current contemporary surgical scene.

Through the courtesy of Smith, Kline and French Laboratories, a fine colored television program of surgical procedures, originating from the St. Vincent's Charity Hospital, Cleveland will be shown daily in the auditorium from 9:00 a.m., to 1:00 p.m. Motion pictures will also be presented each day depicting many of the recent advances in surgery and surgical technique.

One of the highlights of the meeting will be the annual banquet at the Statler Hotel on Thursday evening when America's great surgeon, Dr. Frank Lahey of Boston, will talk on "Some of the Recent Advances in Surgery." Dr Elmer Henderson, President of the American Medical Association, will deliver an address on "The Importance of International Cooperation in Surgery."

Reservations may be secured by writing to the Committee on Hotels, International College of *Surgeons, 511 Terminal Tower, Cleveland 13,* Ohio. Preliminary programs may be obtained from the central office, 1516 Lake Shore Drive, Chicago 10.

UROLOGY AWARD

The American Urological Association offers an annual award of $1000.00 (first prize of $500.00, second prize $300.00 and third prize $200.00) for essays on the result of some clinical or laboratory research in Urology. Competition shall be limited to urologists who have been in such specific practice for not more than five years and to men in training to become urologists.

The first prize essay will appear on the program of the forthcoming meeting of the American Urological Association, to be held at the Palmer House, Chicago, Illinois, May 21-24, 1951.

For full particulars write the Secretary, Dr. Charles H. de T. [illegible]vers, Boardwalk National Arcade Building, Atlantic City, New Jersey. Essays must be in his hands before February 10, 1951.

"YOUR MENTAL HOSPITALS" — DISTRIBUTION OF PSYCHOPATHIC PATIENTS

Among the many responsibilities of the Illinois Department of Public Welfare are those concerned with the distrubution of patients from the Psychopathic Hospital of Cook County to the State hospitals. For several years, the Department has been responsible for the transportation of patients from the Psychopathic Hospital to the four northern State hospitals, that is Chicago, Elgin, Kankakee, and Manteno State hospitals. For this purpose, it has furnished a transportation clerk, nurse, attendants, and clerical personnel to handle the administrative details concerned with this function.

The Cook County Phychopathic Hospital, under the able direction of Dr. V. Urse, receives many thousands of patients, each year, for mental examination and appraisal. Subsequent to completion of their workup, they may be referred to the State mental hospitals or private sanitaria for treatment.

For some time, it has been felt that a better distribution of patients could be obtained if the Department could furnish a psychiatric social worker who would be available to offer her help in this role. As a result of this thinking, effective April, 1950, the Department placed a qualified phychiatric social worker at the Psychopathic Hospital whose main function has been to aid in the equitable distribution of patients. She is assisted not only by the various personnel of the Psychopathic, but there has also been furnished to her a psychiatrist from the Department on a consultant basis. The entire project is under the direct supervision of the Chief Medical Officer of the Department.

In order to relieve the overcrowding of the northern State hospitals, efforts have been made by the worker, to interest relatives of patients, in having them committed to one of the other State hospitals. Since, in recent months, the Jacksonville and East Moline State hospitals have been the least overcrowded, efforts have been made in that direction; and, as a result of this, a good number of patients are now at these two hospitals where they are able to obtain a much better type of care and treatment since these facilities are the least overtaxed. The Department social worker also concerns herself with those patients who are not residents of this state so that these patients can be rapidly processed for their deportation to their state of residence. The entire program is geared with the thought in mind that the patient's welfare is the goal to be kept in mind, and it is felt that the additional service furnished by the Department has been of great help in the distribution of patients to the various state hospitals of the Department.

G. A. Wiltrakis, M.D.
Deputy Director

PRESIDENT'S MESSAGE TO THE WOMAN'S AUXILIARY 1950-1951

As we begin another Auxiliary year, may I extend to all Auxiliary members my good wishes and sincere hope that we may all do our full share in meeting the grave problems that face the profession and our very freedom.

As heir to the privilege of serving you, I'm a little awed before the distinguished record of my predecessors, while welcoming the challenge of their high ideals. Please count on me to do everything possible to continue and increase the usefulness of the Woman's Auxiliary to the Illinois State Medical Society. We will, of course, continue our work on the Benevolence Fund, our "Social Security" for all Doctors and their families who may need it. Last year the Auxiliary contributed $5,354, a superlative accomplishment!

Today's Health, formerly Hygeia, is undergoing changes which will make it an even better Health magazine. We are urged by the A.M.A. to double the subscriptions to this periodical. Take it yourself, place gift subscriptions in schools, libraries, beauty shops, and Community Centers. Authentic health information, attractively presented will do much to combat propaganda against the profession.

May I urge all officers to subscribe to the Bulletin; the "work book" of the Auxiliary. It is published four times a year by the Woman's Auxiliary to the A.M.A. and edited by our own Mrs. James P. Simonds of Chicago. It is a veritable store house of information and help.

All these things I can count upon you to do throughout the year. Our biggest task and our greatest responsibility lies just ahead of us, from now until November 7th, namely — To get out the vote.

According to a survey made in Summit County, Ohio, a County, including the industrial city of Akron, it was learned that —

18% of the physicians of the County did not vote in the 1948 election

13% of them were not even registered and, therefore, not eligible to vote

22% of the wives of physicians did not vote — 16% of them were not registered.

This almost unbelievable data uncovered in Ohio has proven an awakening for many States and "get out the vote" campaigns have been successful.

The results of this campaign in Florida are heart warming where it was recognized that every doctor (and his wife) should become a crusading citizen at a time when our American way of life is threatened. They suggest that every doctor —

1. Register the entire family and vote
2. Solicit every doctor in the community to fight in every possible way the socialization of medicine
3. Mobilize all who are affiliated with health activities
4. Finance the activities through collections from his own group

Then the pamphlet from Florida says:

"Without doubt, the most effective single mission doctors can perform in a congressional campaign, in most districts, is a thorough-going letter writing job, beamed to their patients. Personal letters signed by the doctor on his personal letterhead and mailed in his own envelopes."

As your President, I am counting on each of you to help your Medical Society in this campaign. First of all, see that your entire family is eligible to vote, then help with the letter writing and vote checking.

In Illinois the issue is clear — it is no longer "medicine fight for medicine — it is an American citizen's fight against Socialism, which is the "transition stage between Capitalism and Communism."

As your President, I pledge to you my full support and co-operation in all your undertakings.

Mrs. Carl E. Sibilsky, President
Woman's Auxiliary to the
Illinois State Medical Society

CLINICS FOR CRIPPLED CHILDREN LISTED FOR OCTOBER

Doctor Herbert R. Kobes, director of the University of Illinois Division of Services for Crippled Children, has released the October schedule of clinics for physically handicapped children. The Division will conduct 17 general clinics providing diagnostic orthopedic, pediatric, speech and hearing examinations along with medical social and nursing services. There will be 4 special clinics for children with rheumatic fever and 1 for cerebral palsied children.

Clinics are held by the Division in cooperation with local medical and health organizations and groups, hospitals, civic and fraternal clubs, and other interested groups. From private physicians, who are certified Board members, are selected the clinicians. Any private physician may refer or bring to a convenient clinic any child or children for whom he may want examination or may want to receive consultative services:

The October clinics are:

October 4 — Elgin, Sherman Hospital
October 10 — Peoria, St. Francis Hospital
October 10 — E. St. Louis, Christian Welfare Hospital
October 11 — Hinsdale, Hinsdale Sanitarium
October 12 — Springfield, St. Jon's Hospital
October 12 — Elmhurst (Rheumatic Fever), Memorial Hospital of Dupage County
October 12 — Cairo, Public Health Building
October 12 — Glenview, Village Hall
October 13 — Chicago Heights (Rhematic Fever), St. James Hospital
October 17 — Danville, Lake View Hospital
October 17 — Jacksonville, Our Saviour's Hospital
October 18 — Aurora, Copley Hospital
October 19 — Rockford, St. Anthony's Hospital
October 24 — Peoria, St. Francis Hospital
October 25 — Springfield (Cerebral Palsy), Memorial Hospital
October 25 — Chicago Heights, St. James Hospital
October 26 — Normal, Brokaw Hospital
October 26 — Flora, Clay Co. Memorial Hospital
October 26 — Litchfield, St. Francis Hospital

October 27 — Chicago Heights (Rheumatic Fever), St. James Hospital
October 31 — Effingham (Rheumatic Fever), Douglas Township Building
October 31 — Watseka, County Court House

In carrying on its program the Division works cooperatively with local medical societies, hospitals, the Illinois Children's Hospital-School, civic and fraternal clubs, visiting nurse associations, local social and welfare agencies, local chapters of the National Foundation for Infantile Paralysis and other interested groups.

The Division of Services for Crippled Children is the official state agency established to provide medical, surgical, corrective and other services and facilities for diagnosis, hospitalization, and after-care for children who are crippled or who are suffering from conditions which may lead to crippling.

MEETING ON CHILD SAFETY

The American Academy of Pediatrics and the National Safety Council will hold a joint meeting on Tuesday, October 17th, at 8 P.M. in the Grand Ballroom of the Palmer House, Chicago, Ill., to discuss methods of preventing accidents among children. The main objectives of this joint meeting are:

1. To focus national attention on the importance of child safety.
2. To develop practical methods whereby the medical profession and other safety interests can mutually aid in reducing the high accident toll among children.
3. To stimulate research in the cause and prevention of child accidents.

With the conquest of the communicable diseases of children, accidents now represent the leading cause of death and an outstanding cause of disablement and other injuries among children at all ages from 1 to 14. The highest rates are in the preschool and runabout age. Most of these accidents occur in and around the home. In an average year, accidents result in the death of more than 5,000 preschool children between the ages of 1 and 4. This is greater than the number of deaths from diphtheria, which occurred annually in this age group, nearly a quarter of a century ago when this dread disease was considered an outstanding cause of child deaths. Concerted action leading to a reduction of accident mortality and morbidity among children is of timely importance.

The following program is planned for this joint meeting:

ACCIDENTS: CHILDHOOD'S GREATEST HEALTH HAZARD

Presiding as Co-Chairmen:
Edward B. Shaw, M. D.
President of the American Academy of Pediatrics
Ned H. Dearborn
President of the National Safety Council

Organizating for Prevention —
President of the National Safety Council

The Pediatric Approach to Accident Control
a. Through practice —
Harry Dietrich, M.D., Los Angeles
b. Through research —
Rustin McIntosh, M.D., New York, N. Y.

The challenge of Child Accident Prevention —
Dr. Herold C. Hunt
Superintendent of Schools
Chicago, Ill.

MISSISSIPPI VALLEY MEETING

The 15th Annual Meeting, Mississippi Valley Medical Society will be held at the Elks Club, Springfield, Ill. Sept. 27, 28, 29 under the Presidency of Dr. N. G. Alcock of Iowa City, Ia., Immediate Past-President of the Iowa State Medical Society. Over 30 clinical teachers from the leading medical schools will conduct this post-graduate assembly whose entire program is planned to appeal to general practitioners. No registration fee will be charged and every ethical physician is cordially invited and urged to attend. The American Medical Writers' Ass'n. will hold their annual meeting at the Elks Club on Sept. 27. Programs of both meetings may be obtained from Harold Swanberg, M.D., Secretary, M.V.M. Society and A.M.W. Association, 209-224 W.C.U. Bldg., Quincy, Ill.

ORIGINAL ARTICLES

Convalescent Poliomyelitis

Robert L. Bennett, M.D.
Warm Springs, Georgia

An adequate convalescent care program can be set up only after its objectives are clearly defined and the factors that determine the extent to which the objectives can be achieved are thoroughly appreciated.

OBJECTIVES

The objectives are so obvious that they need little elaboration: (1) We must salvage all neuromuscular units that remain intact after the invasion of the virus is over as well as those that gradually become physiologically available again as the inflammation in the neuromuscular system quiets down. (2) We must prevent or minimize all musculoskeletal deformities that tend to occur with disuse, faulty muscle balance and excessive strain on weakened segments so that our potential muscle power will not be limited by distortion of bone and joint or by contractures of ligamentous, tendonous or fascial tissues. (3) We must utilize this time of convalescence not only for the purely physical aspects of recovery but also to assist the patient and his family to make an adequate compensation to the eventual functional handicap; the success of our program must eventually be determined by the ability of our patients to return to a normal environment and live happy and expective lives.

Presented before the General Assembly, Illinois State Medical Society, 110th Annual Meeting, Springfield, May 24.

FACTORS

1. *The Site and Extent of Central Nervous System Damage.* This factor is of importance not only because it limits the number of neuromuscular units available for use but also because certain deformities of the skeletal system must follow certain patterns of damage in the nervous system. For example, if a large portion of the nerves that innervate the skeletal muscles of a bodily segment, such as the leg and foot, are destroyed, normal strength and endurance of those muscles can never be obtained regardless of treatment. In a child serious alteration of osseous structure and growth may also occur despite the best of care.

2. *The General Medical Condition of the Patient during the First Few Months after the Acute Illness.* Many patients are so severely involved that their general medical condition prohibits application of convalescent routines that under more favorable circumstances would limit the development of musculoskeletal deformities and faulty patterns of motion. For example, the patient who must be kept in a respirator cannot be cared for adequately and will develop changes in bone, muscle, fascia, joint and periarticular structures that will be, in great part, irreversible regardless of the highest type of available treatment.

3. *The Caliber of Available Care.* The average patient with residual weakness following poliomyelitis is at best a difficult problem in rehabilitation, requiring for optimal end results the combined skills and experiences of the internist or pediatrician, the physiatrist and the orthopedist. Many patients with only minimal involvement who could be expected to recover normal functional capacity with intelligent care develop severe handicaps because of early weight bearing, unrestricted activity and failure of the attending physician to recognize mild muscle imbalance and incipient deformity. It must be stressed that the patient, child or adult, regardless of how mild the residual involvement may seem, must be repeatedly checked to determine the effect of increasing growth, weight and activity on skeletal structures. The tragedies of progressive deformity, such as scoliosis, can be minimized only if responsible periodic examinations of the musculoskeletal system are made for many years after the acute episode.

4. *The Responsibility and Intelligence of the Patient and/or His Parents.* This factor could be included in the third category but it is of such importance that it deserves special attention. For all practical purposes the general personality of the patient and his parents is second only to the skill of the physician in assuring the maximum recovery of functional capacity within the limits set by the pathology of the acute disease. It is, of course, impossible to provide hospital bed space for all patients throughout the entire period of their convalescence, but even if it were it would be inadvisable to do so. Prolonged hospitalization is to be avoided because of the danger of mental stagnation and loss of initiative and self-confidence. Return to normal environment and contact with physically normal people are all-important in the overall rehabilitation program. Under ideal conditions the patient should be hospitalized only until the period of rapid recovery has taken place and the correct patterns of movement consistent with the underlying disease have been established. From then on the long-term program to increase strength and endurance by graduated activity can best be carried out at home. In some instances only modified activity is necessary, but in most a very definite routine of joint mobilization and graduated exercises must be carried out for many months or even years.

SEVEN STEPS IN OVER-ALL PROGRAM OF CARE

The first step (Figure 1) may at first thought be considered unnecessary in a convalescent program but is included to emphasize that certain convalescent routines may actually endanger the patient's life if initiated too early in the acute or subacute phase or at any phase if carried out without regard for the patient's general medical condition.

The second step in our treatment program is the attempt to prepare the patient for resumption of activity. In a great majority of cases this will mean, first, preparation for long and tedious weeks of muscle reeducation. It is at this point that a program of convalescent care really begins. The three major points in the preparation of any patient for resumption of activity are: (1) relief of pain; (2) release of any tightness in the muscles and joints; (3) support of any bodily segment that is weakened.

It should be readily appreciated that coordinated action of muscle groups acting on any bodily segment is impossible if motion of that segment is limited by pain or by limitation of joint motion. Until this is done we can never fully regain the maximum use of existing myoneural units in any bodily segment. Relief of pain and the release of tightness are accomplished by time plus the use of intelligently prescribed sedatives, heat and passive motion. As in the use of all therapeutic agents the type and frequency of application of heat and motion depend on the reaction of the patient. There is no magical formula to achieve this end by any phase of physical medicine except through the intelli-

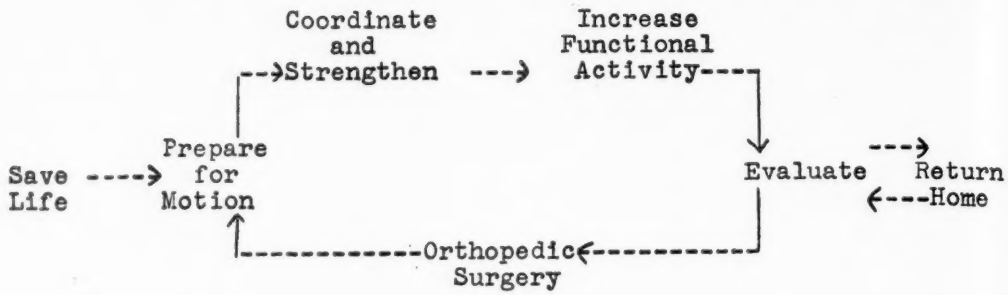


Figure 1 Seven Steps in Over-All Program of Care

gence and responsibility of the attending medical personnel. It is equally important in this step that we begin our endeavor to prevent musculoskeletal deformities. Deformities, except for atrophy and weakness following actual denervation, have just one cause: persistent faulty alinement of bodily segments which results in distortion of bones and joints and fibrous contractures of muscular and ligamentous tissue. In this early convalescent stage of poliomyelitis such malalinement results from persistent faulty posture in bed caused by such factors as pain, muscle weakness, faulty beds or the weight of bed clothes on weakened extremities. Therefore, it is of importance not only to preserve normal bodily mechanics and alinement by the early restoration of mobility in muscle and joint as just mentioned but also to prevent this persistent faulty posture by the most effective method possible. An effective support is not only one which holds the segments in proper position but also one which in no way interferes with the other components of early care. It should be quite evident that the type of support will depend on the quality of available medical supervision. Assuming adequate medical supervision is not available, a bivalved plaster cast may be more effective than pillows or sand bags. Under intelligent supervision an orthopedic bed, foot board, properly placed pillows and possibly a light plastic wrist and thumb splint are all the actual equipment needed to prevent deformities at this time.

The third step is to coordinate and strengthen the existing neuromuscular units. Certainly this step is the most important and probably the most difficult one in the entire program. It is in this step that we have made our greatest strides in the treatment of poliomyelitis during the past ten years — not because any outstanding discoveries have been made in functional anatomy or bodily mechanics but primarily because physical medicine has been given an opportunity to use its skill on bodily segments properly prepared for muscle reeducation. It is obvious that the success of this step is absolutely dependent on the thoroughness with which the painless and complete mobility of the segment has been restored. It is a continued source of amazement and gratification to see the extent of functional capacity that can be developed by patients with very little muscle power but highly developed coordination. It must be stressed that coordination and power are not the same. Power without coordination may be disastrous to the patient recovering from poliomyelitis because experience has taught us that all muscles in the involved segments do not recover with the same speed. If, as each of these individual muscles come under voluntary control, no attempt is made to coordinate their use, faulty habit patterns of motion will be built up by the patient with the use of these stronger and more easily available groups to the total exclusion of the weaker and thus less available groups. The development of a truly high degree of coordination in the patient with moderate to severe involvement demands the attention of a highly skilled physical therapist. No athlete ever needed a

coach as badly as these patients need a physical therapist.

It is of the greatest importance to recognize that during this phase of our program all of our routines are based on the hope that sufficient return of muscular strength will occur to permit normal activity in a perfectly normal manner. It is for this reason that normal patterns of movement are stressed until adequate treatment given over a reasonable length of time has revealed the extent of damage to the nervous system and the limits of recovery possible.

It is of the greatest importance to recognize that during this phase of our program all of our routines are based on the hope that sufficient return of muscular strength will occur to permit normal activity in a perfectly normal manner. It is for this reason that normal patterns of movement are stressed until adequate treatment given over a reasonable length of time has revealed the extent of damage to the nervous system and the limits of recovery possible.

How long should we persist in our endeavor to build up the strength of individual muscles by this intensive muscle reeducation? The answer can best be summarized in Figure 2.

Experience has taught us that the recovery of strength in individual muscles or muscle groups

Figure 2

follows a fairly definite curve or pattern. The end of the third month following the acute onset of weakness, a muscle receiving adequate and intelligent treatment has recovered approximately sixty per cent of the total strength that it will ever recover if treated for an indefinite period of time. During the second three months an additional twenty per cent returns for a total of eighty per cent return at the end of the first six months of adequate treatment. After this the recovery rate becomes increasingly slower so that by the end of eighteen months of treatment it can be reasonably assured that no further increase in individual muscle strength can be expected. By applying this recovery rate curve to specific cases it will be seen that a muscle rating of "poor minus" (ten per cent of normal) at the end of a six-month period of treatment can be expected to gain only an additional twenty per cent of that rating or a total of twelve per cent strength even if treated for a year longer. Obviously, twelve per cent of normal strength would mean little or nothing in actual functional value and there would be no justification in treating such a muscle beyond the initial six months time. On the other hand, if a muscle rated "fair plus," or sixty per cent of normal, at the end of the first six months, the possibility of ultimately gaining an additional twenty per cent of that rating (seventy-two per cent of normal) would be well worth working for, particularly if this muscle was one of the important weight-bearing groups.

During this phase the single muscle or muscle group is the unit of treatment. Obviously an accurate grading of these units in the involved segments is essential to the success of muscle reeducation. No muscle test is adequate unless individual muscles and not movements are tested. At the Georgia Warm Springs Foundation detailed test sheets are employed to record the strength of these individual muscles. Test sheets that mix muscles and movements brought about by many muscles are to be condemned.

Apparatus may be necessary to assist the normal actions of muscles at this time, and should be considered a part of the treatment not an admission of defeat. They are applied to allow a more complete return of strength in the full hope that as strength returns they may be discarded.

The fourth step is increasing the actual functional activity of the patient. By the time this step is reached we should be able to determine with a fair degree of accuracy the extent of further improvement that is possible in the

individual patient. Certainly, it will be known by then whether a patient will be able to return to a normal environment and carry on normal activities with normal patterns of motion. It will also be fairly obvious at this time whether it will be necessary to add some type of supportive or assistive apparatus to maintain this activity when the patient returns home. It is during this step that specific functional tests are given the patients to determine their ability to carry out certain activities that are required of them in a normal environment. When existing muscle strength and coordination permits, all of these activities are carried out in a normal manner. If it is obvious that the damage to the motor system of the central nervous system is such that normal patterns of motion can never be achieved, the patient is given the necessary apparatus to support the activity and taught the most effective ways of using this apparatus. If necessary, specially designed assistive types of apparatus are made for the individual patient. It might be perfectly possible for one patient to achieve normal activity without any type of brace, crutch or corset whatsoever. Another patient might be able to achieve the same activity but only by using a long leg walking brace. Another patient, however, might have such severe involvement that walking will never be safe or practical, and that actually teaching him to care for his own personal needs, through the use of specially made splints or feeders, will be his maximum functional capacity.

The fifth step is the attempt to evaluate a patient, not only in terms of what he can do at the present but whether further treatment is necessary to increase his functional capacity and to assure his future security.

All patients regardless of involvement should be completely evaluated by the physiatrist and orthopedist before dismissal from the hospital. On the basis of this evaluation the present status and probable ultimate involvement should be thoroughly discussed with the patient and/or his family. Instructions in all necessary treatment to be continued at home can be given at this time as well as definite instructions in type and extent of activity and the time of the next medical checkup.

The sixth step is usually the return to a normal environment. Before this step is actually made both the patient and his parents should be fully acquainted with the patient's entire problem and the possibility of any change in his status in the future. In a great majority of patients treatment at home must be continued for many months, interspersed with repeated medical examinations to determine the need for additional treatment, either as a means of increasing the patient's functional capacity or perhaps minimizing certain deformities that seem to be occurring.

Thus a patient from the sixth block of a normal environment might return to the fifth block of evaluation and then be sent back into the treatment program, either for increased coordination and strength of muscle effort or for some phase of increased functional activity; or perhaps at this time he will be referred directly to the orthopedist for certain orthopedic procedures

No medical program for the care of the after-effects of poliomyelitis is complete unless it provides for adequate follow-up if its patients. Maximum return of strength, endurance and functional activity may require years of guided effort. Many deformities will not occur nor existing deformities progress until many years after the onset of the disease. Likewise, many supportive, corrective and assistive orthopedic procedures cannot be carried out with optimum results until patients reach a period of solid bone formation. The doctor must maintain contact with his patient until maximum functional capacity has been obtained and future security established.

The seventh step is that of orthopedic surgery at which time the surgeon endeavors to determine whether certain procedures can increase the patient's ability to function with either greater effectiveness or endurance, but more particularly to determine whether the patient's increasing growth, height, weight and activity can be supported on weakened segments without damage to them. In a great many instances, before any consideration can be given to increased functional capacity and security, the orthopedic surgeon must correct deformities that have occurred during the convalescent period.

The continued physical security of the patient is the most serious responsibility of orthopedic surgery. It is absolutely necessary to foresee the effect of growth, increasing weight, age and activity on weakened bodily segments and to take

adequate precautionary measures when relatively simple surgical procedures will prevent the occurrence of irreversible structural changes. Ideally, surgery should be considered not as a last resort after the damage is done but rather as a means of preventing these tragedies. It is obvious that the results obtained by the orthopedic surgeon depend on the thoroughness of the conservative care during the period of convalescence. Certainly, if fairly normal skeletal alinement and joint mobility have been preserved, the surgeon can do his work more efficiently.

It is essential that we foresee the possibility of later surgical procedures throughout all early phases of convalescence. It is equally important to point out that certain surgical procedures are needed during the convalescent stage. In general, it has been stated that when orthopedic surgery is indicated to correct a deformity, increase functional capacity and assure future security of bodily segments, it should be deferred until the chronic stage or, in children, after bone formation is well advanced. This is only partially true. Relatively simple surgical procedures, such as sectioning of the iliotibial band or heel cord if done early in a convalescent program, often permit restoration of bodily alinement possible in no other way. This not only prevents irreversible and severely handicapping changes from taking place but also permits more effective use of muscle reeducation and functional training.

Public Health Aspects of Infantile Paralysis

E. A. Piszczek, M.D., M.P.H.
Chicago

The importance of infantile paralysis as a public health problem can be realized by the statistical analysis of the reported incidence of the disease for the past three decades. For the ten year period 1920-1929 there were 47,168 reported cases, a yearly average of 4,700 cases. For the decade 1930-1939, 75,271 cases were reported, a yearly average of about 7,500 cases or a 59.5% increase over the previous decade. From the year 1940-1949 a total of 174,886 cases of polio were reported in the United States for a yearly average of 17,500 cases, an increase of 272.3% over the decade of 1920-1929 and an increase of over 133% over the period 1930-1939.

Public health workers are ever alert to the public health problem brought on by the increase in the reported cases of infantile paralysis. They are anxious to assume their great responsibilities, especially during the epidemic waves of the disease that occur in unpredicted cycles in all parts of the country. Illinois has had a three-year cycle incidence of the disease in epidemic proportion.

The public health officer should be interested in three broad fields during an increase in the incidence of polio, namely:

1. Education of the public
2. Education of the physician
3. Provision of treatment facilities in cooperation with other official and voluntary agencies.

Education Of The Public. The public should receive the best information available concerning the incidence of poliomyelitis, not only in their own community, but also in other epidemic or near epidemic areas in the country. The public should not invite polio into their family by vacationing in an epidemic area.

The general public dreads infantile paralysis more than any other disease, and yet an intelli-

Presented before the General Assembly, 110th Annual Meeting, Illinois State Medical Society, Springfield, May 24, 1950.

gent analysis and understanding of the facts concerning poliomyelitis can allay such anxiety. The public should be aware of the low incidence rate of polio and of the even lower secondary attack rate. They should also know that poliomyelitis does not always result in permanent disablement, that in fact, the incidence rate of polio — particularly paralysis — is very low. Coupled with this, a good health education program for the preparation of the public should bring to their attention the ways and means by which the disease might possibly be prevented, and more specifically those factors which are predisposed to paralytic poliomyelitis.

The following directives should be emphasied to the general public:

Keep children with their own friends. Keep them away from strangers or anyone who shows any signs of illness.

Try not to get over-tired by work, hard play, or travel. It has been observed that only the good-looking, bright, energetic, ambitious, over-exerting, over-fatiguing type of jitterbug individual who never has time to rest, eat, or sleep is the victim of the disease.

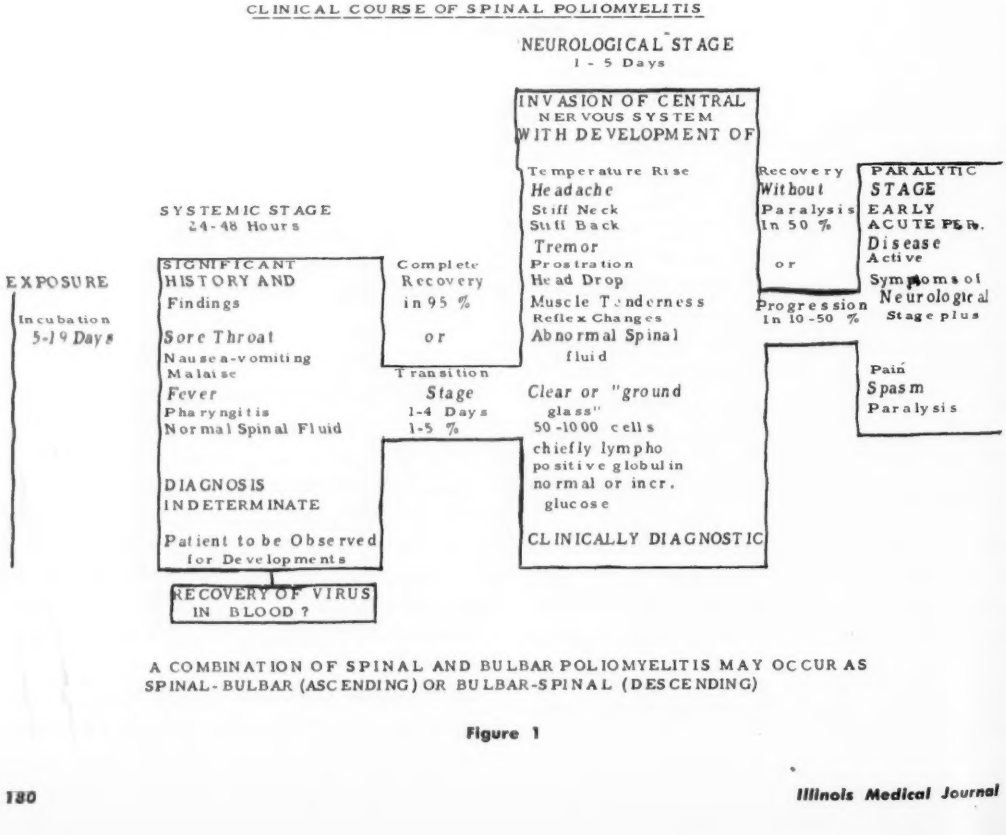
Keep from getting chilled. Don't bathe or swim too long in cold water. Take off wet clothes at once. Chilling can lessen the body's resistance to polio.

Keep clean. Wash hands carefully before eating and always after using the toilet. Hands may carry the polio infection into the body through the mouth.

Be careful what you eat and drink. All persons should be certain that the food they eat and drink has been prepared in a sanitary manner, refrigerated and kept away from flies and insects and other possible sources of contamination.

Use approved recreational facilities. Be sure that the swimming pool and other recreational facilities have been inspected and approved by your local health authorities. Never seek recreation or swimming facilities in polluted streams.

Education Of The Physicians—In some of our



A COMBINATION OF SPINAL AND BULBAR POLIOMYELITIS MAY OCCUR AS SPINAL-BULBAR (ASCENDING) OR BULBAR-SPINAL (DESCENDING)

Figure 1

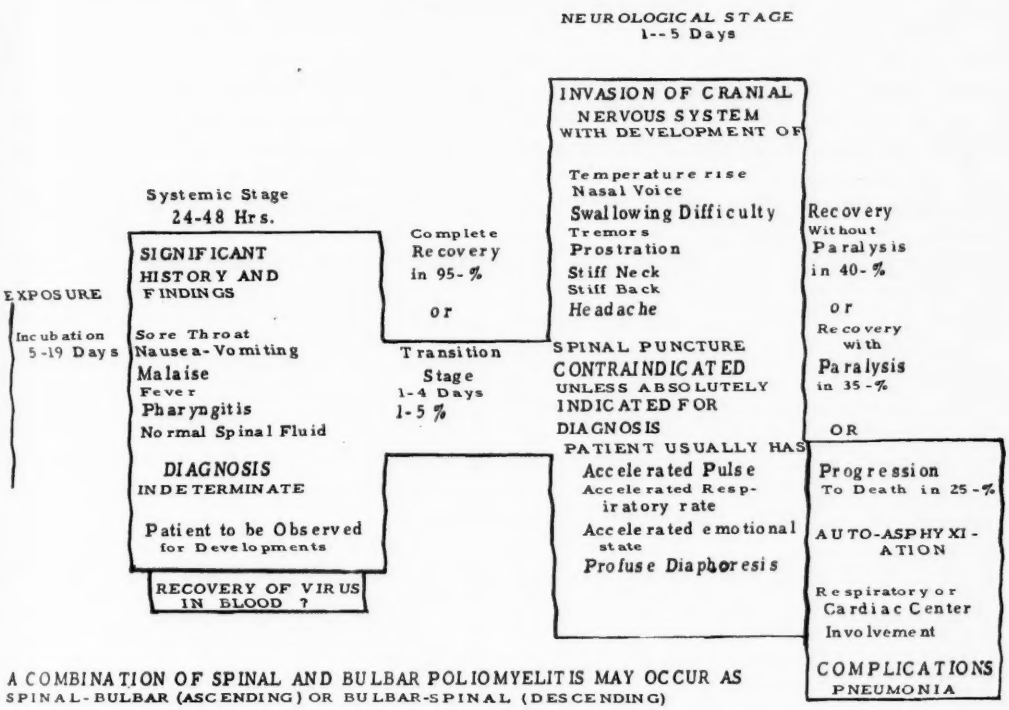


Figure 2

urban epidemics in Illinois all of the cases of polio were seen by less than 5% of the practicing physicians, namely the pediatricians and a few of the general practitioners who make home calls. It is with no embarrassment that alert physicians admit the need for current education concerning poliomyelitis.

The health officer is in a position to advise the local physician about the characteristic symptoms which occur in the polio patient. These early symptoms vary from year to year and epidemic to epidemic. (Figure 2) The local physicians should be advised of the incidence of bulbar polio. They should be advised that when a case of bulbar poliomyelitis is diagnosed by a physician that patient should be placed in a position where the head is lower than the rest of the body thus allowing for postural drainage of the saliva from the mouth. It must be realized that the patients with bulbar poliomyelitis cannot swallow, cannot expectorate, cannot cough, and if they are placed in a semi-sitting position and transported in this manner they may aspirate saliva, which at times may cause death. I have seen this unfortunate situation occur on several occasions. These patients should be placed in an ambulance with the head lower than the rest of the body and a suction apparatus or rubber suction syringe should be available to aspirate the mucus out of the mouth if necessary. Transportation of patients with bulbar poliomyelitis over a long distance is not recommended. Excessive speed and the use of the siren which may excite the patient is also not recommended. The smoothest, slowest, road to the hospital should be used. The patient should not be subjected to any strain or agitation and the patient's morale should be maintained at all times.

Spinal puncture. During the polio season and especially in areas where there is an epidemic

any procedure which would excite and aggravate the condition of the patient with bulbar poliomyelitis should be avoided. Spinal puncture is not recommended during the early stage of the disease. At a later time when the patient seems out of danger, if a spinal puncture is desired, it can be done without harm to the patient.

Early diagnosis and the establishment of early and adequate medical care are of paramount importance. Health officers can aid local physicians by providing expert consultation for suspected cases. The local physicians should also be informed daily as to the availability of hospital facilities for the treatment of acute polio.

The family physician should join the health officers in advising the families of victims of poliomyelitis to lead a very lazy life for at least two weeks after exposure to a case of poliomyelitis, as recent figures show that the incidence of multiple cases in the same family has risen sharply in the past decade. Most physicians will remember the fall of 1949 when poliomyelitis struck members of the Yale football team, football practice as well as the scheduled games were cancelled for two weeks.

Provision Of Treatment Facilities—With the encouragement of health officials practically every large community has been provided with facilities for the treatment of infantile paralysis by its local hospital by mutual cooperative efforts of the health department, the hospital, the medical profession, and the local chapter of the National Foundation for Infantile Paralysis. In Illinois in 1949 seventy local hospitals admitted polio cases in all stages of disease.

The treatment methods of polio have in recent years undergone radical changes. Changes are being introduced currently. These newer developments in the treatment of infantile paralysis are complex but contribute materially to the comfort of the patient and to improvement in prognosis. It can be definitely stated that the end-results seen in infantile paralysis today are much better than those seen a quarter of a century ago. This has been due largely to the concentration of medical, hospital, nursing and physiotherapeutic effort brought on by the work of the National Foundation for Infantile Paralysis. The cost of the treatment is probably fifty times the cost of twenty-five years ago, but the end-results seen today are worth the price in the prevention of disabling crippling.

SUMMARY

1. The incidence of poliomyelitis nationally has increased 272.3% over the average expectancy of 20 years ago. Illinois has had a three-year cycle incidence of the disease in epidemic proportions.

2. Public health agencies have a responsibility of educating the general public concerning the incidence, early signs, and preventive aspects of the disease. Early medical attention should be encouraged.

3. Public health agencies should keep the local medical profession advised of the incidence, predominant symptoms, and availability of local hospital beds for the care of the disease.

4. Today communities are providing treatment facilities in local hospitals by cooperative efforts of the health department, the hospital, the medical profession, and the local chapter of the National Foundation for Infantile Paralysis. The problems of polio, despite the large increase in the incidence of the disease, are being met today by these cooperative efforts.

Problems in Differential Diagnosis of Poliomyelitis

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The variations in the early clinical manifestations of poliomyelitis frequently present diagnostic problems. Increasing interest in the disease and emphasis on early diagnosis has created an awareness among clinicians which has prompted them to "err on the side of safety" by diagnosing poliomyelitis when suggestive symptoms occur. We believe it of interest, therefore, to report our experiences with mistaken presumptive diagnoses in a recent epidemic in this state.

It should be emphasized that it is not our purpose to detract from the importance of early diagnosis. Rather because of its potential gravity, its impact upon parents, and the possibility of inadvertent exposure if an incorrect diagnosis is made, it is highly important that precise criteria be employed in early diagnosis of poliomyelitis. We believe that practicing physicians are interested in learning the fate of patients whom they refer to poliomyelitis diagnostic and treatment centers.

CLINICAL SUMMARY

The data to be presented were accumulated during the months of July through December of 1949 at St. Joseph's Hospital, Bloomington, Illinois. This hospital was designated as a diagnostic and treatment center for poliomyelitis. A total of 140 patients referred by various physicians in the area were admitted with a tentative diagnosis of poliomyelitis. Of the total number 110, or 78.5%, were found to have poliomyelitis. Thirty, or 21.4%, were found not to have poliomyelitis and of these twenty-three, or 16.4%, were found to present problems of unusual interest. This group of cases forms the basis for this report.

For presentation, the cases are divided into nine general groups (Table 1). The classification has of necessity been arbitrary at times.

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DISCUSSION

In view of the extensive literature on poliomyelitis, it is of interest to compare the diagnostic accuracy in the Bloomington epidemic with that of other outbreaks. Gordon[1] over a period of four years at the Herman Kiefer Hospital in Detroit between 1928-31 found that in only one-half of 446 patients admitted with a diagnosis of poliomyelitis was it confirmed. Top and Brosius[2] reporting a larger series of cases from this same hospital gave an error in diagnosis in suspected poliomyelitis of 43.7 percent. The New York epidemic of poliomyelitis in 1931 was reported in detail by Brahdy and Lenarsky[3]. Careful examination indicated that in 113 of the 1123 patients admitted to Willard Parker Hospital the tentative diagnosis of poliomyelitis was not confirmed. During the Kansas epidemic in 1943, Steegman and Stephenson[4] reported on 121 patients referred to the hospital with tentative diagnoses of poliomyelitis. Of this number 74.4% proved to have poliomyelitis. The remaining 25.6% did not have the disease. In Scott's[5] experience during epidemics of poliomyelitis the errors in diagnosis may vary from 4 to 50%. In comparison to these figures, the 21.4% of presumptively incorrect diagnoses in this epidemic represents a good record, especially in view of the relatively large number of physicians making referrals.

The widespread education for the early diagnosis of poliomyelitis has rendered almost any child with a limp, gait disturbance or any loss of function of an extremity a poliomyelitis suspect. It is therefore advisable to emphasize some diagnostic criteria which may eliminate confusion. The following manifestations should suggest that other diagnoses be considered:

1. *Severe pain, localized tenderness, or swelling of affected extremities*

   Swelling of an affected extremity is not usual in poliomyelitis. The presence of pain

TABLE 1
Cases

General Group and Specific Disease	Symptoms Suggesting Poliomyelitis	Definite Diagnostic Findings
I. Acute Infectious Diseases		
1. Typhoid Fever	14 year old boy with admission history of headache, stiff neck, spiking fever and vomiting for two days	Diagnosis of typhoid fever suspected on admission. Acute illness, dehydration and fever of 105° with pulse rate 75 not likely in poliomyelitis. Palpable spleen, rose spots on abdomen suggested clinical diagnosis of typhoid fever. Normal cerebrospinal fluid and positive blood culture for E. typhosus confirmed diagnosis. Rapid recovery with chloromycetin therapy
2. Tetanus	6 year old boy. No history of immunization. No history of injury. Presenting complaints of gradual onset of restlessness, headache, hyperirritability, muscle weakness and one convulsion	Diagnosis of tetanus made on following findings: 1. Trismus 2. Marked opisthotonos 3. Board-like rigidity of abdomen 4. Typical facies 5. Clonic convulsions 6. Profuse diaphoresis Absence of history of injury or no evidence of injury does not exclude diagnosis of tetanus. Recovery after therapy with antitoxin and sedation
3. Tonsillitis Acute Follicular (Streptococcal)	2 cases (twins 2½ years old) History of older sibling 4 yrs. with recent paralytic poliomyelitis in hospital. These children became ill 3 days following sibling's removal from household. Presenting complaints of fever 103°, vomiting, slight diarrhea, listlessness and cough	Epidemiologically poliomyelitis might be suspected. Physical examination revealed the following: 1. Bilateral catarrhal otitis media 2. Rhinitis, acute 3. Tonsils, enlarged cryptic, studded with yellow exudate, pharynx markedly injected. Moderate cervical adenitis. 4. Florid growth hemolytic streptococci cultured. 5. Prompt response to penicillin therapy.
4. Rheumatic Fever	5 year old girl. Entering complaints of headache, stiff neck, low grade fever, sore throat and generalized stiffness for 5 days	Invasive manifestations somewhat prolonged for poliomyelitis. Physical examination indicated: 1. Injected pharynx 2. Tachycardia — 160 3. Erythema marginatum over abdomen 4. Slight redness, heat, swelling and tenderness of left knee joint 5. Erythrocyte sedimentation rate — 55 mm/hr The fever, tachycardia, rash, acute arthritis and laboratory findings establish the diagnosis of rheumatic fever
5. Lymphadenitis, deep iliac	8 year old boy. History of apparent weakness of left leg, low grade fever 2 days, pain in inguinal region on left when attempting to move leg	No known exposure. No respiratory or gastrointestinal symptoms. Physical examination: 1. Normal upper respiratory tract 2. Reflexes all intact 3. Rather tender to palpation over the left inguinal region and marked pain when flexing thigh on abdomen 4. Infection present on inner aspect of ankle and foot with lymphangitis present on close inspection 5. Superficial iliac node palpable on left — slightly tender

(*Continued*)

Table 1 (*Continued*)

II. Acute Infections of the Central Nervous System		
1. Pertussis Encephalitis	5 year old girl. History of 3 siblings in family with whooping cough. Patient had been coughing severely for 1½ weeks. Admitted with following complaints: fever, coma, generalized convulsions	Epidemiology suggestive of complication of pertussis. Physical and laboratory examination: 1. Opisthotonos marked 2. Bilateral Babinski reflex 3. Ankle clonus, sustained, bilateral 4. Exaggerated tendon reflexes 5. Comatose 6. Spinal fluid normal 7. White blood count 62000 per cu. mm. with 80% lymphocytes 8. Exhibited changing neurological findings gradually becoming decerebrate over period of 2 weeks
2. Meningitis, Bacterial A) meningococcic B) influenzal	A) 6 mo. infant with entering complaints of irritability, fever for 2 days, vomiting 1-2 times with increasing lethargy at time of admission B) Similar history	A) Physical and laboratory examination: 1. small petechiae over ankles and wrists 2. tense fontanel 3. lumbar puncture -- 3100 cells, meningococci recovered
3. Central Nervous System involvement without infection. Hemiplegia	10 year old girl. Sudden onset of paralysis of right side of body. No previous febrile illness, slight headache, n convulsions	B) H. Influenzae in spinal fluid. Lack of history of infection. Physical and laboratory examination: 1. blood pressure 230/160 2. enlarged heart 3. urinary findings, occasional rbc, casts and albumen, low specific gravity 4. evidence of wasting 5. lumbar puncture normal Findings consistent with chronic glomerulonephritis
III. Metabolic Disorders		
1. Diabetic coma 2 cases A) age 10 B) age 5	Both cases entered in deep coma and acidosis. No previous diabetic history. Both had had acute upper respiratory infections prior to admission. Admitted as cases of possible bulbar poliomyelitis	Physical and laboratory examination: 1. Kussmaul respirations. No evident resp. paralysis 2. Acetone odor to breath 3. Reflexes all hypoactive 4. Marked dehydration 5. Blood sugar A) 390 B) 600 Glycosuria marked. Acetone and diacetic and tests of urine 4 plus. Both responded to diabetic management
IV. Allergic Conditions		
1. Bronchial Asthma	6 year old boy entered as possible bulbar poliomyelitis. Complaints of "chest cold" for 3-4 days, cough, slight fever, and day of entry he developed rapid, difficult breathing and general malaise	Physical examination: 1. Evident wheezing and difficult and prolonged expirations 2. Dramatic response to epinephrine
V. Poisons (Household)		
1. D.D.T. Intoxication	6 year old boy entered with history of having become ill late in afternoon after assisting father in DDT distribution about farm. Child semi-comatose, vomited 3-4 times, was seen to "twitch" 2-3 times on way to hospital	In view of history, DDT intoxication was suspected. Physical and laboratory examination: 1. Semi-comatose 2. Reflexes all intact 3. Moderate dehydration 4. Normal cerebrospinal fluid Recovered after 24 hrs. observation with fluid administration

(*Continued*)

Table 1 (*Continued*)

VI. Myopathies		
1. Amyotonia congenita	2 month old infant entered because of high fever, cough, vomiting. Infant seemed limp. Mother stated this child was never as active as other 2 siblings	History suggestive of illness antedating present illness. Physical and laboratory examination: 1. Rhinitis 2. Dullness over right mid. and lower lobes with rales 3. Absent tendon reflexes generally, Babinski negative 4. Poor muscle tone; very flaccid 5. Weak cry 6. Rapid respirations No response to therapy; death ensued
VII. Acute Myositis		
	16 year old male. History of sudden pain in right shoulder accompanied by tenderness and some limitation of motion. Afebrile; no previous illness. Did heavy labor	Physical examination 1. Point tenderness over deltoid muscle 2. No other findings 3. Afebrile 4. Lumbar puncture revealed normal cerebrospinal fluid
VIII. Psychological and Emotional Problems		
1. Cyclic vomiting 2 cases Both case histories similar	5 year old boy — an only child — entered with history of severe, persistent vomiting of 36 hours duration. No fever, no recent illness. Had had one attack 6 months previously	Physical and laboratory examination revealed only mild dehydration. Recovery with glucose and sedative therapy
2. Hysteria 2 cases A) 10 year old girl B) 12 year old girl	A) Simulated paralysis of right leg. History of best girl friend being stricken with poliomyelitis and confined to hospital. Patient's attack followed shortly. No previous infection or illness	A) History suggestive of emotional instability. Obviously anxious child. Full range of motion of limb involved, reflexes intact. No muscle spasm; refused to walk on right lower extremity. Lumbar puncture: normal cerebrospinal fluid. Improved with reassurance
	B) Simulated paralysis of left arm. Sibling in hospital with paralytic poliomyelitis	B) No abnormal findings in involved limb. Considerable anxiety over sibling. Lumbar puncture: normal cerebrospinal fluid
IX. Miscellaneous		
1. Fractures	6 day old infant. Born of mother who died of fulminating poliomyelitis 7 days after delivery. Complaint of infant not moving the left leg since birth and of crying and irritability when leg moved. No fever	History suggestive of poliomyelitis. Physical and laboratory findings: 1. Normal newborn except for failure to utilize left leg 2. Careful examination revealed crepitation, induration and tenderness over mid-thigh region. 3. X-rays revealed fracture of femur
2. Tick paralysis	Previously well 7 year old child with rapid onset of stumbling, inability to balance well and headache. Fever 102°.	Unusual onset for poliomyelitis. Physical and laboratory examination: 1. Flaccid lower extremities 2. Slight stiffness of neck 3. Absence of fever 4. Lumbar puncture: normal cerebrospinal fluid 5. Enlarged tick (Variabolis) found base of neck — removed with rapid recovery
3. Dilantin intoxication	5 year old male — entered with complaint of ataxia of 2 days duration	History of convulsions. Receiving dilantin therapy. Total daily dose 4 days prior to admission of 8-10 grains. Physical examination revealed no abnormalities. Symptoms disappeared on discontinuance of drug.

and swelling may suggest: early osteomyelitis, bursitis, acute rheumatic fever, pyogenic arthritis, cellulitis, or acute myositis.

Examples in cases presented: Fracture, acute rheumatic fever, and acute myositis.

2. *A well-marked lymphadenitis or other lymph node enlargement*

When noticeable and painful enlargement of the lymph nodes is present, the following merit consideration: Acute respiratory infection, infectious mononucleosis, peritonsillar or retropharyngeal abscess, tuberculous adenitis, lymphoblastoma and leukemia.

Examples in cases presented: Acute follicular tonsillitis, inguinal lymphadenitis.

3. *A high fever, particularly of a septic nature*

The temperature in poliomyelitis is usually only moderately elevated. The average duration of fever was 4.8 days in a recent Illinois epidemic[6]. A fever curve suggestive of sepsis or localized infection merits consideration of the following: Typhoid fever, pyelonephritis, brucellosis, sub-acute bacterial endocarditis, sinusitis, and otitis media.

Examples in cases presented: Typhoid fever.

4. *A critically ill, irrational or comatose patient*

This is uncommon in poliomyelitis unless *hypoxia* is present. These findings suggest: Meningitis, cerebral hemorrhage or thrombosis, diabetic coma, cerebral manifestations of acute nephritis.

Examples in cases presented: Meningitis, typhoid fever, tetanus, diabetic coma, and glomerulonephritis.

5. *Marked dehydration*

Most poliomyelitis patients are not significantly dehydrated. Dehydration should suggest diabetic acidosis, typhoid fever, bacillary dysentery or other diseases associated with vomiting and diarrhea.

Examples in cases presented: Cyclic vomiting, diabetic acidosis and typhoid fever.

6. *Convulsions*

Convulsions are unusual in poliomyelitis patients. Convulsions may be encountered in infants and small children with an acute onset of poliomyelitis. More commonly observed in tetanus, tetany, epilepsy and acute febrile states.

Examples in cases presented: Tetanus

7. *Prolonged illness with subsequent paralysis and regional sensory changes*

There may be transient hyperesthesias in poliomyelitis but there are no well defined sensory changes. These manifestations may suggest: Post-diphtheritic paralysis or lead poisoning with peripheral neuritis.

8. *Upper motor neurone lesion*

The presence of upper motor neurone signs and symptoms practically eliminates poliomyelitis with the exception of the unusual cortical type. These manifestations suggest: Brain tumor, cerebral vascular accidents and encephalitis.

Examples in cases presented: Pertussis encephalitis and hemiplegia.

9. *Ataxia*

The presence of this finding should lead one to consider brain tumor, multiple sclerosis, common poisonings, and tick paralysis.

Examples in cases presented: Tick paralysis and dilantin intoxication.

The relatively nonspecific nature of the early manifestations and the absence of a specific diagnostic test results in a confusion with a wide variety of disorders. From our experiences and from the literature, a listing of disorders which have been confused with poliomyelitis has been compiled in Table II.

In recent years several interesting problems of differential diagnosis have been emphasized. The differentiation of poliomyelitis from acute infectious polyneuritis (Guillain-Barre syndrome) has been discussed by de Sanctis[7]. The favorable prognosis in the latter disorder accentuates the importance of an accurate diagnosis. The relative symmetry of paresis, the characteristic albuminocytologic dissociation in the cerebrospinal fluid, and the lack of history of an acute infectious onset suggest the Guillain-Barre syndrome.

Paul[8] has presented a study of a group of patients who were admitted to the University of Iowa Hospitals with a tentative diagnosis of poliomyelitis. Careful study did not confirm the diagnosis. The clinical course was that of

TABLE 2

DISEASES WHICH HAVE BEEN CONFUSED WITH POLIOMYELITIS

1. Nasopharyngitis
2. Follicular tonsillitis
3. *Sinusitis, Acute*
4. Mastoiditis, Acute
5. *Otitis media*
6. Influenza
7. *Pneumonia (Viral, Bacterial)*
8. Measles
9. Mumps
10. Scarlet fever
11. Whooping cough
12. Endocarditis (Sub-acute and Acute)
13. Rheumatic fever
14. Typhoid fever
15. Bacillary dysentery
16. Gastro-enteritis, Acute
17. Syphilis, congenital
18. Pyelonephritis
19. Nephritis, Acute
20. Trichinosis
21. Osteomyelitis
22. Torticollis
23. Exanthem subitum
24. Tuberculosis, Acute miliary
25. Cerebral Thrombosis
26. Abscess
    a) Retropharyngeal
    b) Cervical
    c) Intra-spinal
    d) Brain
    e) Inguinal
27. Epilepsy
28. Herpes Zoster
29. Tetanus
30. Infectious Mononucleosis
31. Rabies
32. Malaria, cerebral
33. *Serum sickness*
34. Vaccination — Post (Encephalitis)
35. *Appendicitis, Acute*
36. Scurvy
37. *Rickets*
38. Fractures
39. Suppurative Arthritis
40. Traumatic Arthritis
41. Leukemia
42. Post-Diphtheritic Neuritis
43. Lead poisoning
44. Acute multiple sclerosis
45. Acute myositis
46. Amyotrophic lateral sclerosis
47. Hysteria
48. Bronchial Asthma
49. Bell's Palsy
50. Transverse Myelitis
51. Encephalitis
    a) Post-infectious Measles; Mumps; Pertussis
    b) Von-Economo
    c) St. Louis
    d) Japanese B
52. Lymphocytic Chorio-meningitis
53. Infectious Polyneuritis
54. Meningidites
    Tuberculous
    Meningococcic
    Influenzal, etc.
55. Brain tumor
56. Birth injuries
57. Pre-tibial Fever (Fort Bragg fever)
58. Coxsackie Viral Infections

sudden onset of chills or chilly sensations, severe headache, muscle soreness, and high fever with gradual uneventful recovery. For lack of a better name, the entity was colloquially referred to as a "dengue-like" disorder.

Recently a syndrome simulating poliomyelitis, but caused by a distinctly different virus of the "Coxsackie group" has been reported[9,10]. The true incidence of this disease is not known, since at present diagnosis rests on highly specialized virus study techniques.

Some problems in the diagnosis of poliomyelitis are illustrated by a recent report of Fox and Wallace[11]. These authors observed 87 patients who manifested the clinical and laboratory criteria of poliomyelitis, but not a single patient developed the paralytic form of the disease. It was therefore postulated that this outbreak may have been due to an attenuated or unusal virus strain or that an entirely unrelated type of encephalomyelitis may have been responsible. Whether this may have been related to the Coxsackie or other neurotropic virus infections was not determined.

Young[12] reported four cases of hysterical paralysis seen by him during the 1946 epidemic in Nebraska which should serve to emphasize the importance of anxiety and other emotional factors in suspected cases of poliomyelitis. This report also illustrates the value of determining the precise nature of the paralysis in order to effect appropriate diagnosis and treatment.

That acute appendicitis may be confused with early poliomyelitis has been emphasized by Hobart[13]. The localization of pain, tenderness and muscle spasm are more suggestive of acute

appendicitis. The importance of noting difficulty in swallowing and enunciatoin of syllables or words as early manifestations of bulbar poliomyelitis has been discussed by Toomey[14]. Other factors may of course be responsible for these symptoms, hence laboratory confirmation of the diagnosis is desirable.

Levinson[15,16] has summarized the clinical history and physical findings in poliomyelitis. A careful evaluation of the history and detailed physical examination provides the background for accurate diagnosis in most instances. Gordon[2] has aptly stated that practical experience indicates the need for better appreciation generally of the clinical nature of early poliomyelitis; the disease is too often first recognized by the presence of paralysis. Equally unfortunate is the tendency during an epidemic to advance the diagnosis of poliomyelitis for many other and more common diseases of childhood without sufficient critical differentiation. This circumstance leads to unsatisfactory management of conditions that are not poliomyelitis, and to undue alarm about the actual prevalence of the specific infection.

SUMMARY AND CONCLUSIONS

1. Since poliomyelitis simulates many other diseases, the importance of careful and deliberate study of each case tentatively diagnosed poliomyelitis is essential. The hazards of exposing children in whom the diagnosis is unconfirmed emphasizes the necessity for adequate isolation facilities pending the establishment of a definitive diagnosis in any center caring for patients afflicted with poliomyelitis.

2. Although early diagnosis in poliomyelitis is desirable from the viewpoint of both epidemiology and management, errors in diagnosis may unnecessarily jeopardize patients with other diseases of childhood who are not receiving appropriate therapy as a result of mistaken diagnosis.

3. The clinical disorders and symptoms which are most commonly confused with poliomyelitis have been presented.

4. In view of the emphasis on early diagnosis in poliomyelitis, the establishment of a correct presumptive diagnosis in 78.5% of 140 patients reported in this study represents a favorable record of diagnostic accuracy when contrasted with other reports.

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Poliomyelitis
A Clinical Pathological Correlation

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Any attempt to correlate the clinical and pathological findings in a disease as complex as poliomyelitis must necessarily be based to a large extent on unproven theories and hypotheses. Little is known about the pathogenesis of the disease and much of our available information concerning the pathologic anatomy has been derived from experimental work with monkeys and from human autopsy studies. Because of the absence of a suitable experimental animal in which to reproduce and study the diseases, we are still pretty much in the dark concerning the mode of entry of the virus, its spread through the body, the factors which determine the sites of its localization, and the mechanism of the body's reaction to the virus. The entire picture is further confused by the fact that the disease is probably caused by several different viruses to which the body may respond in different ways.

The time has come to revise most of our teaching concerning the nature of this disease. Poliomyelitis has always been and is still regarded by most as a disease of the central nervous system which results in paralyses. The paralytic form of poliomyelitis is only one phase of the greatly varied clinical picture which results from infection with the poliomyelitis virus. The disease is basically a generalized virus infection which in a relatively small proportion of cases localizes in the central nervous system and produces paralyses. We know very little about the factors which determine that in one patient the virus shall produce degeneration of the cells of the brain and spinal cord, and in another a very mild and practically insignificant illness, but we do know that infection may be widespread where paralysis is not. The proportion of paralytic to non-paralytic polio may vary tremendously in the same location and in the same year. The incidence of central nervous system involvement may vary from 0 to 80%.

It is quite probable that the virus enters the body by way of the autonomic neurons in the intestinal tract or by the olfactory pathways. This is substantiated by the clinical fact that even though the virus is basically neurotropic, the onset of the disease usually is characterized by either a gastro-intestinal or upper respiratory infection. Further proof of this theory is the observation that the virus can be consistently demonstrated in the feces and in secretions from the nose and throat. In the great proportion of cases the disease does not progress clinically beyond this stage. Whether or not there is involvement of the central nervous system at this stage cannot be established for the obvious reason that these patients do not come to autopsy. However, experimental evidence suggests that changes occur in the central nervous system even though paralysis does not develop.

The rate of spread of the virus from the intestinal tract and upper respiratory tract through the body varies greatly. The progress may be fulminating with the devlopment of paralyses within a few hours, or several days, or as long as a week may elapse before there has been sufficient multiplication and spread of the virus to produce paralysis.

There is also great variation in the localization of the virus once it has spread beyond the barriers imposed by the intestinal and upper respiratory tracts. In addition to involvement of the central nervous system there is also frequently very significant cardiac involvement with demonstrable histologic changes which will be described later.

In the paralytic cases the disease involves the entire central nervous system and is not confined to the anterior and lateral horns as is commonly supposed. In addition to involvement of the central nervous system, there is also considerable evidence of lesions in the autonomic nervous

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system. Clinical evidence to support this contention is provided by the frequent occurrence of urinary retention, rectal incontinence and anhidrosis. This is encountered particularly in those cases with encephalitic manifestations.

In fatal cases, autopsy usually reveals, in addition to degenerative changes in the anterior horn cells, varying degrees of necrosis of the interstitial tissue. This may vary in extent from small focal areas of necrosis to large extensive zones of destruction which may be visible to the naked eye.

The severe pain so frequently encountered in poliomyelitis is produced by this diffuse indiscriminate involvement of the central nervous system. The irregularly distributed character of the necrosis causes both muscle spasm and flaccid paralysis. Paralyzed muscles become overstretched by their spastic antagonists resulting in the severe pain which can usually be overcome by the judicious application of hot packs or the carefully controlled use of curare.

The acute degenerative changes occur as a rule entirely within the first few days. During this period it is extremely difficult to evaluate the amount of neuromuscular involvement. During this period there is considerable reflex inhibition of normal muscles due to the marked pain which the patient experiences on attempting movement of these muscles. This may give the clinical picture of extensive paralysis which actually does not exist. When the spasm and the pain in these normal muscles has been overcome, the true extent of the neuromuscular involvement becomes evident.

The reflex inhibition of normal muscles may also cause marked weakness and incoordination in the early stages of the disease. The muscular incoordination may be further accentuated by involvement of Clarke's column and other cells in the base of the posterior horns.

The most severe changes are encountered in the so-called bulbar cases in which there is involvement of the brain stem. A prominent morphologic feature in these cases is the presence of extensive areas of necrosis in the supporting tissue in addition to degenerative changes in the nerve cells. If death occurs early in the course of the disease many polymorphonuclear leukocytes are found in these areas. If, however, death does not ensue for several days the polymorphonuclear leukocytes are replaced by mononuclear cells.

A prominent feature in the cases encountered in Champaign County last year was the occurrence of encephalitic features, such as extreme irritability, drowsiness, disorientation and muscular twitchings. Very little histologic change is seen to explain these manifestations. Some mononuclear cell infiltration may be found in the cerebral hemispheres, particularly in the region of the precentral gyri, but this is not prominent.

The destruction of the nerve cells may occur very early in the disease, even before any obvious paralysis has become evident. In these early stages there may be destruction of nerve cells without any inflammatory reaction. This explains the not infrequent absence in the early stages of the disease of cellular elements from the spinal fluid. Numerous cases of acute poliomyelitis have been reported in which there was no significant alteration in the cellular content of the spinal fluid. This fact is substantiated by experimental work done on monkeys. After intracerebral inoculation of polio virus into monkeys, a prodromal period ensues which is clinically comparable to the preparalytic phases of the disease as encountered in man. The spinal fluids are consistently normal until the third day before the onset of paralysis. Three days before paralysis occurs only 50% of the animals show any elevation in cell count of the spinal fluid.

This is an important diagnostic consideration and it should be emphasized that a pathological spinal fluid is not necessarily a constant accompaniment of poliomyelitis, particularly in the preparalytic stage of the disease.

The earliest change in the nerve cells is dissolution of the Nissl substance in the cytoplasm. At this stage the process is probably still reversible and the resulting paralysis may disappear if the cell returns to normal. As the process progresses, however, nuclear damage occurs and then the paralyses are permanent.

The early degenerative changes in the nerve cells are followed by an increase in inflammatory cells which is reflected in the spinal fluid. At first these cells are predominantly polymorphonuclear leukocytes but these persist for only a few days and are replaced by mononuclear leukocytes. The latter may persist in the tissues

for several months after the onset of the disease.

The total cell count of the spinal fluid varies greatly. Except for those cases mentioned previously in which the cell count may be normal, the total cell count is usually highest early in the course of the disease and then diminishes until about the third week when it returns to approximately a normal level. The level of the cell count may vary tremendously in paralytic cases and is, as a rule, no index of the severity of the disease, nor is it of any prognostic value. We have observed fulminating bulbar cases with cell counts that ranged between 30-40. In other cases cell counts as high as 2,000 have been reported. Most frequently the cell count ranges between 50 and 250 cells per cubic millimeter.

The variation in the cell count in the absence of any corresponding variation in severity of the disease may possibly be due to different responses induced by the various strains of the virus. This may also account for variations observed in the differential cell count. It is an established fact that different strains of the same virus or closely related viruses may elicit cellular responses which vary in quality as well as in quantity.

Coincident with the alteration in cellular content of the spinal fluid, there is also usually an elevation in total protein content. Normal range for spinal fluid protein is usually given as 20 to 25 milligrams per 100 cc. of spinal fluid. In the early stages of the disease the protein level is normal or slightly elevated. The protein content usually reaches its peak about the fourth week of the disease and may remain elevated for as long as 10 weeks after the onset of the illness. The average protein level in large series of cases usually runs about 40 to 60 milligrams per 100 cc., but cases have been reported in which it has reached a value of 300 milligrams percent in the later stages of the disease.

The effect of poliomyelitis on the heart deserves very careful consideration. In planning therapy all efforts are usually directed at preventing and overcoming the effects of the virus on the neuromuscular system. Very little or no attention is paid to the patient's cardiac status despite the fact that careful clinical evaluation in fatal cases usually reveals definite evidence of cardiac decompensation. Recent studies by Saphir and others indicate that severe inflammatory changes may occur in the heart muscle in fatal cases of poliomyelitis. This is characterized by the presence of foci of lymphocytic infiltration. The myocardium is soft and flabby and presents the typical gross and microscopic appearance seen in acute myocarditis.

At autopsy these patients show definite evidence of decompensation. In addition to the gross and histologic evidence of myocarditis, passive hyperemia of liver, lungs and kidneys is frequently observed. The severe edema of the lungs which is almost constantly present in fatal cases is probably due to cardiac decompensation resulting from the myocarditis.

Histologically, the type of myocarditis observed cannot be distinguished from the myocarditis observed in other infectious diseases. Because of this, doubt has been cast on the role of the poliomyelitis virus in the production of this myocarditis. It is possible that this lesion may be due to secondary bacterial invasion. Nevertheless, the incidence of myocarditis is too high to be ignored and it should be given careful consideration in establishing therapy.

Lesions in skeletal muscle are also frequently found in poliomyelitis. Foci of lymphocytic infiltration may be found scattered throughout the muscle presenting the typical picture of a myositis. This is usually not extensive but occurs too frequently to be ignored. The role of this lesion in the production of muscle spasm and pain cannot be ignored.

Penicillin in the Treatment of Congenital Syphilis

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The use of penicillin in the treatment of congenital syphilis has been an advance over the old style of treatment. The most striking results have been obtained in the early congenital cases or infantile syphilis. As might be expected, the results are less brilliant, in fact disappointing, in the treatment of late congenital syphilis or in children three years or older.

This report deals with 36 infants and children treated with peniclin G or with procaine penicillin from 1945 to the present. These patients are from the two Children's Syphilis Clinics under my direction at the University of Illinois' Research and Educational Clinic, and at the Central Free Dispensary of Presbyterian Hospital, Chicago. In order to evaluate the use of soluble penicillin and of procaine or slow penicillin, the results are given for each type of therapy. Also, because there is a marked difference in results in the age groups, infants and older children, the results in these groups are set forth.

The patients were divided as follows:

Penicillin G	
Presb. Hosp., C.F.D.	U. of Ill., R. & E.
9 cases (1 white 1 Mexican 7 Negro	10 cases (1 white 9 Negro
Procaine Penicillin	
14 cases (1 white 1 Mexican 12 Negro	7 cases (7 Negro
(2 cases retreated after penicillin G) (both Negro)	(2 cases retreated after penicillin G) (both Negro)

There were a total of 40 separate series of penicillin treatments in the 36 children.

Penicillin G Treatment In Infantile Syphilis.—Of the 19 children treated with penicillin G, 7 were 2 years or under. In these cases of infantile syphilis 6 were acutely involved with skin lesions or bone lesions or both. It is not uncommon to have mortality in this group. We were fortunate to have no fatalities in this group or in any of the children treated with penicillin in either clinic.

The dosages of penicillin G in infants varied from 95,000 units / Kg. to 164,000 u/Kg in the 3 cases at Presb. Hosp. clinic, and from 118,000 u/Kg. to 1,311,000 u/Kg. in the 4 infants at the University of Illinois clinic. The only relapse was in a 20 month old child who received 95,000 u/Kg., was seronegative at 8 months but seropositive at 12 months after treatment. She was retreated with penicillin G 164,000 u/Kg. (14 months after the original treatment). She was negative in 4 months, positive at 7 months and seronegative from the 8-25th months after re-treatment. Two infants, although now clinically and serologically negative, were treated recently and have been followed only 3 and 5 months respectively. The dosages, 1 @ 1,310,000 u/Kg. and 1 @ 231,000 u/Kg. were sufficiently high to expect continued good results. The other four infants responded satisfactorily to treatment with persistently negative Wassermann and Kahn blood tests.

2½	mos.	154,000	u/Kg.	Neg.	serologies	11-39	mos. after treatment.
15	mos.	107,000	"	"	"	12-30	mos. after treatment.
2	wks.	1,100,000	"	"	"	3-12	mos. after treatment.
2	yr.	118,000	"	"	"	3-11	mos. after treatment.

In the above infants the first two had negative Wassermanns at 4 months each after treatment but had positive Kahns until the eleventh and twelfth months respectively after treatment. To summarize for the infants with early congenital syphilis treated with penicillin G, 5 of the 7 seem cured (one had to be retreated) and the

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other two treated recently with large doses are seronegative and probably cured.

Penicillin G in Late Congenital Syphilis.—The dosages of penicillin G in 12 older children varied from 37,000 u/Kg. to 100,000 u/Kg. in the six children at Presbyterian Hospital clinic, and from 64,000 u/Kg. to 207,000 u/Kg. in the six children at the University of Illinois clinic. Two patients from each clinic were retreated with penicillin in oil followed by 15-20 weekly injections of bismuth subsalicylate. These four children were treated originally with dosages of 37,000 u/Kg. to 75,000 u/Kg. and had been followed 11 to 17 months after first treatment so that their continued positive serologies indicated failures to cure. (Three continue to be positive after retreatment 3 to 11 months now and one is doubtful 10 months now). Two of the 12 children are considered cured. One has been negative from the 6th-18th months after treatment. The other child has had negative serologies from the first through the 21st months after treatment. This child, a younger sister of a resistant case, had a negative Kahn on admission to the clinic but had a positive Wassermann and a doubtful Kahn after a provocative, and was therefore treated. However, she was considered to have had her infection fairly well under control by virtue of her own defense mechanism. She had not been treated previously.

Five out of the 12 older children treated by penicillin G have had fluctuating negative and positive serologies for 18, 20, 14, 5, and 18 months respectively after treatment and are considered doubtful. The patient counted as doubtful after 5 months followup was lost to this clinic because of committment to Manteno State Hospital in June 1948 because of a psychosis. His spinal was negative before treatment was started. His Wassermann was negative and also the Kahn when last seen in the clinic.

The remaining 5 out of the 12 children were considered unsatisfactory in their response to treatment with penicillin G. They had positive serologies 19, 17, 11, 17 and 13 months respectively after treatment. Four of these have been retreated with penicillin in oil as stated above and the fifth child is awaiting retreatment. (or further treatment)

Thus the results of penicillin G therapy in the 12 older children were very unsatisfactory so far as an early cure is concerned. It is true that the dosages were not as high proportionately as in the infantile group, e.g. 37,000 u/Kg. for one patient, 1 @ 64,000, 2 @ 67,000, 3 @ 75,000, 1 @ 95,000, 2 @ 100,000, 1 @ 112,000 and 1 @ 207,000 u/Kg. The two who were considered cured were treated at 60,000 and at 75,000 u/Kg. and yet those who were considered unsatisfactory received around 2,000,000 units per child. (37,000 to 207,000 u/Kg.)

Summary of results

Penicillin G in Infantile Syphilis
- 7 cases (2 wks. to 32 mos.) (6 florid cases) 95,000 to 1,311,000 u/Kg.
- 5 cures and 2 probable cures

Penicillin G in Late Congenital Syphilis
- 12 cases (3 yrs. to 13 yrs.) 37,000 to 112,000 u/Kg. (average = 75,000 u/Kg)
- 2 cures
- 5 doubtful
- 5 unsatisfactory

Procaine Penicillin in Late Congenital Syphilis (No infantile cases treated with procaine pen.)
- 21 cases (5 yrs. to 15 yrs.) 100,000 to 200,000 u/Kg. (15 received 100,000 u/Kg.)
- 2 cures
- 12 doubtful
- 7 unsatisfactory

Procaine Penicillin Treatment.—When penicillin in oil became available we decided to use this type of medication by daily injection to outpatients in the clinics. All patients receiving pencillin G had been hospitalized for such number of days necessary, usually 7 to 14 days. The new method saved hospitalization costs and spared beds for other patients. No infants have been treated with penicillin in oil. Twenty-one children 5-15 years old with late congenital syphilis were treated with penicillin in oil or some form of procaine penicillin. There were no reactions or sore hips encountered. Four of the 21 children were relapsed patients who had been treated with penicillin G 12-19 months previously and were still positive. (Three still positive; one doubtful now). They also received 15-20 weekly bismuth injections.

Seven of the 21 are considered unsatisfactory with positive serologies 12, 8, 12, 8, 6 and 10

months after treatment. One of these children has moved to another city.

Twelve out of the 21 are considered doubtful in their response to penicillin in oil, with fluctuating negative and positive serologies 14, 12, 11, 9, 5, 3, 6, 9, 10, 8, 8 and 12 months respectively after treatment. Eight of these 12 have had 15-20 weeks of bismuth after the procaine penicillin. Several of these patients undoubtedly will turn negative under further observation.

Two out of the 21 are satisfactory 10 months each after procaine penicillin. One of these may have been an acquired case and one was a weakly positive younger brother of a congenital neurosyphilis patient. These two probably represent cases which are easier to cure than the others in the group of late congenitals.

Even so the results with daily injections of procaine penicillin at 100,000 or slightly more units per Kg. are no worse and probably better than with the three hourly injections of the soluble penicillin G. The fact remains that even with bismuth following procaine penicillin or soluble penicillin we are *not* curing any appreciable number of the cases of *late* congenital syphilis. The use of penicillin still represents an improvement over the old style treatment of arsenic and bismuth in that one can probably do as much good in late congenital syphilis with 10 to 21 days of procaine penicillin and 15-20 weeks of bismuth as he could with 1 or 2 years treatment with arsenic and bismuth. Penicillin in large doses 100,000 to 400,000 u/Kg. is quite satisfactory in infantile or early congenital syphilis even without bismuth afterwards.

Since penicillin is tolera'ed very well in children as judged by the absence of reactions, Herxheimer or sensitivity, in our entire group of 36 patien's, it may be wise to treat older children with dosages up to 400,000 u/Kg. Because of the huge total doses involved for the larger children we have not done this so far. Moreover, the effect of aureomycin in congenital syphilis should be determined. It works well in early acquired cases, according to some preliminary reports.

(The work at the Presbyterian clinic was aided by a grant from the Goodspeed Fund; the Upjohn Co. furnished penicillin in oil for 5 patients and the Abbott Laboratories furnished crystalline procaine penicillin used in two patients treated at the University of Illinois Clinics.)

DISCUSSION

Dr. Eugene T. McEnery: The question of syphilis has always been of interest. It is rather interesting to think back to the number of syphilitic cases that we were privileged to see, say, maybe fifteen or twenty years ago, especially at County Hospital. It was a very common thing to see infants who had syphilis. But now — I think Dr. Shaw will bear me out — the demonstration of a baby with syphilitic lesions, as a newborn, is sort of an unheard of thing. I haven't seen one for years. It is very difficult to demonstrate these cases to students. The situation of syphilis has changed. In the Clinic at Children's Hospital where about fifteen years ago we had a very large Clinic there once a week and would see anywhere from twenty-five to thirty-five patients there for treatment, at the present time that has dropped down to, I'd say, maybe five or ten patients a week.

The question that I'd like to ask Dr. Shaw is: Do you think that the incidence of syphilis is increasing within the past five years? They always say after war years you are bound to get more syphilitic patients. My experience with new-born babies certainly hasn't demonstrated that. I haven't seen any syphilis in any newborn baby for practically ten years. Maybe we miss them because they have a different type of syphilis because if the mother is treated early, you don't get congenital syphilis. The situation certainly has changed in the Clinics I have had the privilege of attending.

DISCUSSION

Dr. Noel G. Shaw: "During and after a war there is an increased incidence of venereal disease. However, with the rapid treatment of acquired syphilis there is not the great spread of syphilis that occurred in the First World War.

The routine premarital tests and the serologies taken at work have helped in case finding so that syphilis can be treated and its spread minimized. The greatest aid in reducing the number of cases of congenital syphilis is the routine serologic tests in the pregnant mother and giving her enough treatment to prevent the disease from appearing in the newborn. It is true we are seeing some few cases of active syphilis in infants and newborns, but not many. Adequate treatment in the mother (18-20 injections of heavy metals in the last one-half of pregnancy, or a course of penicillin 600,000 u. daily for 10 days) will prevent congenital syphilis in at least 90% of the cases. We can and should wipe out congenital syphilis."

Protruding Ears: Correction by Plastic Surgery

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Malformations of the auricle are not unusual and may range in severity from complete absence to macrotia. By far the most common deformity is the protruding ear.

Since little importance can be ascribed to the function of the auricle, it is only because of the deleterious psychic effect on the patient that protruding ears assume a clinical significance. Actually, according to the comparative anatomists, the external ear in man is undergoing regression. In comparing the auricular muscles in man to those of animals with similar type ears, a definite diminution to atrophy is evident. In lower animals the auricle has real function for determining direction of sound and for protection of the internal auditory mechanism. Some animals, on stimulation of the tragus will close the ear canal by an infolding of the auricle to serve as a protection from water or insects.

The psychic effects of protruding ears vary with the sensitivity of the individual. In almost all my cases, and surprisingly enough it was marked in children, a feeling of insecurity was evident in these patients, since this deformity unlike most deformities produces reactions of mirth in other people. Being constantly reminded and ridiculed about a deformity will break all defense mechanisms of repression which the patient might have developed, and subjects the individual to an insecurity or inadequacy neurosis. It is fortunate for these individuals that this deformity can be corrected simply and satisfactorily, preferably at an early pre-school age before any real psychic trauma can be inflicted. Other patients who are not at all sensitive about their appearance or defects may desire a correction of the ears purely from an economic or social standpoint.

The normal ear is a thin, shell like structure, having definite depressions and projections. Many variations are found which may still be considered within normal limits. It is only when the ear protrudes abnormally or is absent that the defect is immediately noticeable. Very large or very small ears which may be proportionately more deformed than a protruding ear may go unnoticed if they are placed in a normal relationship to the head.

The cartilage of the auricle consists of a single piece, which gives form to the ear and outlines the landmarks. It is absent from the lobule and is deficient between the tragus and the beginning of the helix. At the front part of the auricle, where the helix bends upward, is a small projection of cartilage, called the spina helicis. At the lower part of the helix the cartilage is prolonged downward as a tail-like process, the cauda helicis, which is separated from the anthelix by a fissure, the fissura antitrago-helicina. The cranial aspect of the cartilage exhibits a transverse furrow, the sulcus anthelicis transversus, which corresponds to the inferior crus of the anthelix and separates the eminentia conchae from the eminentia triangularis. Another furrow exists at the central region of the concha, known as the sulcus cruris helicis, which corresponds to the continuation of the helical rim and separates the concha into two portions, the cavum concha and the cymba concha.

In examining the normal ear from behind, it will be noted that the concha forms a 90 degree angle with the head. The scapha likewise forms an angle of approximately 90 degrees with the concha, but this may vary as much as 10 to 15 degrees and still be within normal limits according to Young[1]. The rim of the helix is then noted to turn outward slightly. The angle between scapha and concha is formed by the anthelix and in the absence or underdevelopment of the anthelix the angle may become obtuse, thereby resulting in a protrusion of the auricle away from the head. Since the angle of the anthelix more or less determines the degree of ear protrusion, the pathology would resolve itself to the type and development of the anthe-

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lix, i.e., the more obtuse the angle, the more the ear projects. The measurement of the angle formed by the head and the helix is known as the auriclo-mastoid angle and is usually about 30 degrees.

The earliest reference to the correction of protruding ears was made in 1845 by Dieffenbach, who advised the removal of skin from the back of the ear, followed by the suturing of the ear cartilage to the mastoid periosteum. Ely[2] in 1881, Keen[3] in 1890, Monks[4] in 1891, Joseph[5] in 1896, and Morestin[6] in 1903 advised removal of large sections of skin from the auriculo-mastoid angle along with the excision of a section of conchal cartilage which lies adjacent to the mastoid process. These methods are not advisable.

The basic concept for the newer type of otoplasty was first described by Luckett[7], who, in 1910, pointed out that the reason for protruding ears was the absence or underdevelopment of the anthelix. If a new anthelix were made, the prominence of the ear could be overcome and furthermore on a lateral view a more normal appearing ear resulted without the distortions of the concha and absence of the normal anthelix fold. Luckett's operation consisted of the removal of a crescentic area of cartilage and skin from the posterior surface of the auricle over the line of the proposed anthelix, the cartilage edges are everted by the use of a Lembert type suture, thereby, forming a new anthelix.

Davis, in conjunction with Kitlowski in 1937[8] published a method they had been using for correcting protruding ears, based on the concepts of Luckett. They outlined the new anthelix along the inferior crus with brilliant green perforated through the skin with a needle from the anterior surface of the auricle. The skin on the posterior surface of the auricle which is removed both from the conchal and mastoid regions is discarded. The cartilage is split along the previously marked line and a section removed. They emphasized that the cartilage must be split through the entire length of the proposed anthelix to break its spring. Catgut sutures close the perichondrium and evert the edges to form the new anthelix.

The objection to the Davis-Kitlowski procedure is that the normal post-auricular sulcus is obliterated by the excess removal of skin from the posterior surface of the auricle and from the mastoid region. Also in the removal of cartilage only from the inferior crus, the superior crus may appear flat and at times the ear will appear to lop forward at its upper pole.

The Davis-Kitlowski procedure led to a modification by New and Erich[9] in 1940 who used mattress sutures externally to help hold the form of the new anthelix. They also used the excision of cartilage from the inferior crus but at times felt it necessary to remove a wedge of cartilage from the superior (posterior) crus to prevent the upper pole of the ear from falling forward.

Young,[1] in 1944, described a similar, but improved method, to the Davis-Kitlowski procedure, but also excised a long strip of cartilage.

These procedures in which a large strip of cartilage is removed will leave a sharp "unnatural" ridge on the surface of the auricle (see Figure 1).

Pierce, Klabunde and Bergeron[10] correct protruding ears by eight to ten incisions almost through the cartilage, to avoid a sharp ridge. However, in my experience this procedure will not suffice in properly correcting most ears and is applicable only in slight protrusions.

The fact that so many procedures have been described for the correction of protruding ears, leaves the impression that no one ideal method has been found. At times it is necessary in certain types of ears to use a variety of methods since no one procedure will suffice for all. However, the method to be described,[11] with the variations which are outlined for different types of protrusions, quite accurately reproduces the normal with almost uniform success. (Figures 2, 3, 4 and 5).

Operative Technique.—Local or general anesthesia is used depending on the age of the patient.

An incision through the skin and perichondrium is made on the posterior surface of the auricle in the region of the margin between scapha and concha, i.e., in the fossa anthelicis, and extends at the superior portion to the junction of the ear and the temporal region while at the inferior portion it extends down to the base of the antitragus close to the mastoid region. The skin and perichondrium are then undermined laterally almost to the auriculo-mastoid angle and to the beginning rim of the

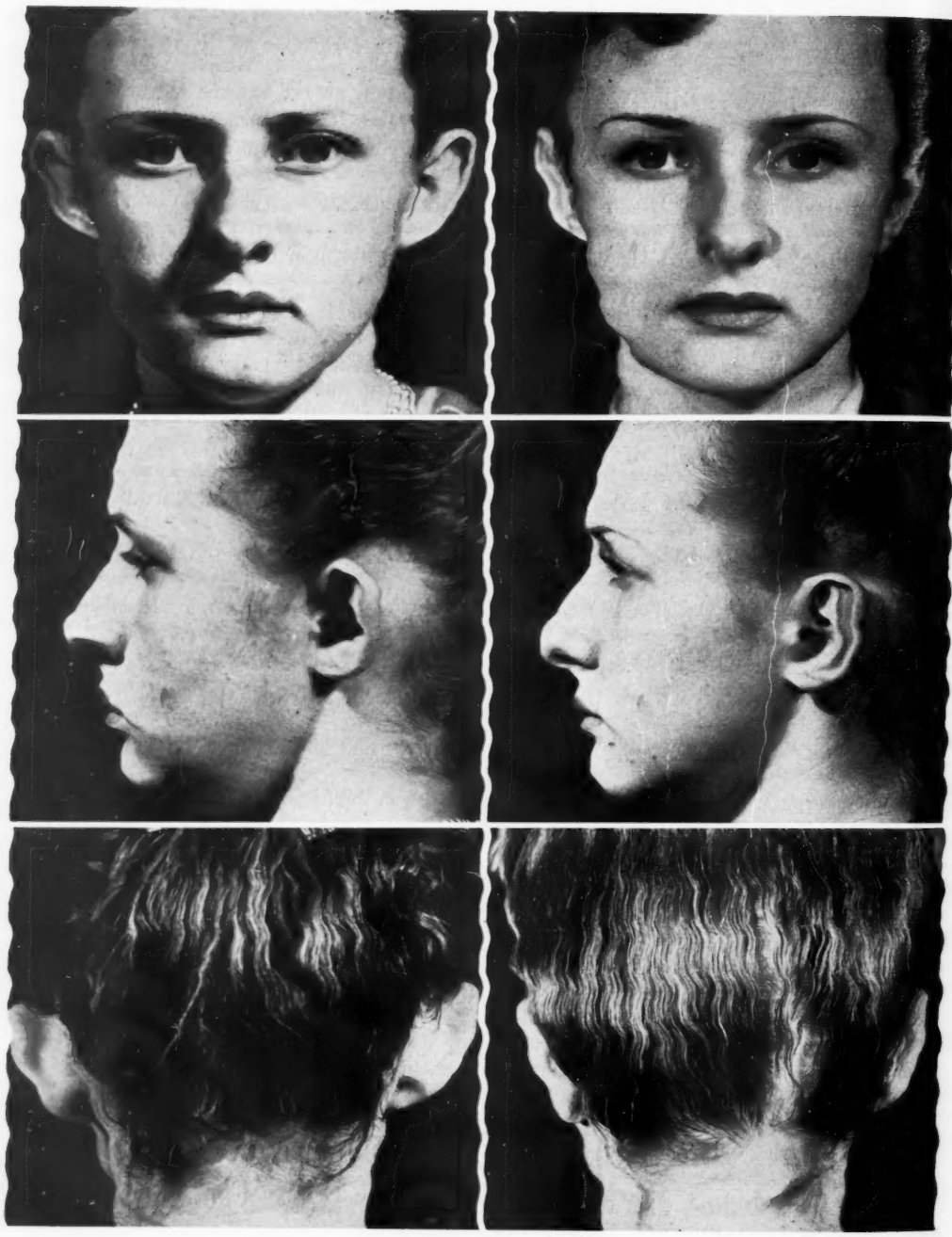

Figure 1. Protruding ears corrected by the usual or standard method of cartilage excision. Note that the corrected ears are placed back to the head, but in the lateral view a sharp ridge is present in the region of the superior crus. This results in an ear that is unnatural in appearance.

Figure 2. Correction of bilateral protrusion of the ears by the author's method. The angle of the anthelix is obtuse, which accounts for the protrusion of the ear. The normal anthelix angle is from 80 to 100 degrees. The formation of a normal anthelix by the method described, and very little sacrifice of skin from the posterior region of the auricle forms an ear which satisfactorily simulates the normal.

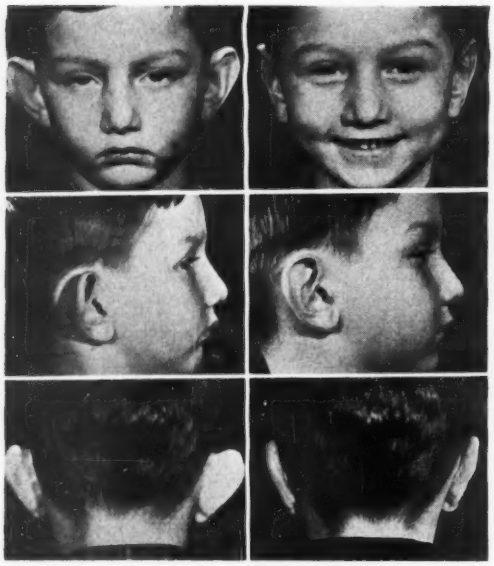

Figure 3. Marked protrusion and cupping of the ears corrected by the method described. In the pre-operative photographs it is noted that there is a complete absence of the anthelix and its superior crus. The inferior crus is present but not well defined. Post-operative photographs reveal normal appearing ears in all views.

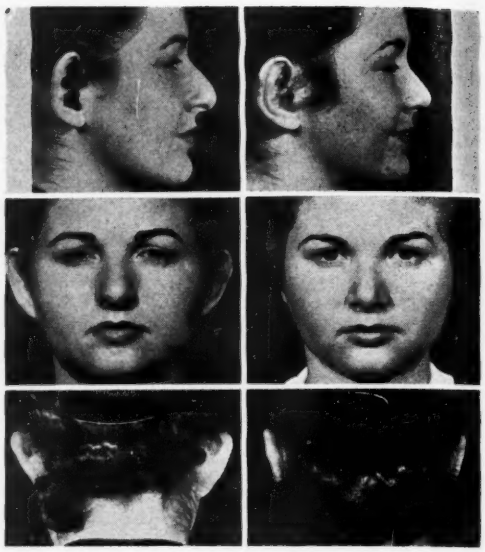

Figure 4. Protruding ears corrected by the method described. Note that the corrected ears present a normal contour of the anthelix and superior crus on the lateral view. (A nasal plastic operation was performed at the same time that the ears were corrected).

Figure 5. Unilateral protrusion of the ear with associated mandibular deformity. Correction of ear by the method described and correction of face deformity by a thoracico-epigastric pedicle skin graft and iliac bone graft to mandible.

helix, thereby exposing the whole posterior surface of the ear cartilage and all its landmarks.

By folding the ear back against the head, the new anthelix is noted on the anterior surface of the auricle. The skin and cartilage are then punctured through from the anterior surface with a fine needle and each point marked on the posterior surface of the ear cartilage with methylene blue to outline the cartilage incision. The double row of marks resulting from this maneuver, are so placed that they completely deliniate the posterior and anterior borders of the anthelix and its superior crus. At the upper end, the markings converge to a curved apex in the region of the superior crus of the anthelix as it merges with the helix. The inferior border comes to a point at the fissura antitragohelicina.

Two incisions are made through the cartilage, one along each of the markings. A section of cartilage is then removed from the anthelix. This excision starts at the fissure antitragohelicina, and continues to an apex opposite the sulcus antihelicus transversus so that a diamond

shaped piece of cartilage is removed. The size of the cartilage excision depends on the amount of spring which must be overcome. The skin is then undermined laterally for a few millimeters on the anterior surface of the auricle. No cartilage is removed from the superior crus.

The cauda helicus which has already been exposed is then completely removed unless the deformity is completely confined to the upper portion of the ear, in which case it may not be necessary. However, in my experience it has been necessary in almost all cases to remove the cauda helicus, for in most cases there is a prominence and a cupping of the lower portion of the ear with a projection upward of the ear lobe. Since removal of the cauda helicus does not cause any distortion of the auricle on the anterior surface, it has proven advantageous in most cases to remove it.

A small transverse section of cartilage is now removed from the upper end of the superior crus, at its junction with the helix. This is necessary to completely break the spring of the anthelix and superior crus from its attachment to the cartilage of the helix. If this section of cartilage is removed close to the helix, no visable fold or defect will be seen on the anterior surface of the superior crus, since it is hidden under the rim of the helix.

In cases where there is severe cupping and projection of the ear lobe and lower portion of the ear which excision of the cauda helicus had not completely corrected, a strip of cartilage is removed from the concha, adjacent to the cauda helicus.

Three or four catgut (mattress type) sutures are inserted through the perichondrium along the margins of the original cartilage incisions and tied just tightly enough to form the new anthelix fold. In many cases, external mattress sutures tied over cotton rolls, as suggested by New and Erich were used instead of the internal catgut fixation sutures. The external mattress sutures proved to have a definite advantage over the internal catgut fixation sutures in forming of the anthelix and superior crus. In most cases the cartilage is soft and pliable, so that no internal or external fixation sutures are necessary.

A section of the excess skin is removed from the posterior surface of the auricle and the skin margins closed with interrupted fine black silk. Sterile wet cotton or rubber sponges are placed in the convolutions of the ear on the anterior surface and a fairly snug pressure bandage applied. The bandage is left untouched for five days at which time the ears are inspected and rebandaged, and if external mattress sutures were used, they are removed at this time. On the seventh day the skin sutures are removed and a light mastoid type bandage reapplied for four or five days.

CONCLUSION

An original method of reconstructing protruding ears, which has yielded highly satisfactory results in the simulation of normal ears, is presented. By this procedure the ear is placed in its proper position to the head, does not obliterate the post auricular sulcus and leaves a smooth superior crus of the anthelix. The lower pole of the ear is corrected by the removal of the cauda helicus.

Since a protruding ear causes no disability, its clinical significance lies in the deleterious psychic effect on the patient, especially in children, who are frequently ridiculed for this abnormality. For that reason the operation should be done in children, especially in the pre-school ages. Adults who may not be sensitive about their appearance may desire a correction of their ears purely from an economic or social standpoint.

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Sections vs. Smears in the Study of Bone Marrow

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Dr. Block: Although needle aspirates of bone marrow may be examined in smears and sections, only smears have found wide acceptance in clinical hematology. Several years ago a comparison of smears and sections obtained from the marrow of a patient with Gaucher's disease made me aware of the deficiencies of the smear technique. Since that time, approximately 1500 marrow aspirates, most of which were obtained with a modified 8 gauge needle, have been studied in both smear and section. An attempt will be made on the basis of this comparative s'udy to point out certain errors which are commonly made in interpretation of marrow smears as well as errors inherent in the smear technique.

One of the objections to the use of sections has been the alleged inability of even experienced hematologis's to recognize marrow cells in section. This is a valid objection in marrow sections prepared by routine methods. However, utiliza'ion of the Maximow technique (Zenker formal fixation, celloidin sections of 6 micra and hematoylin-eosin-azure II staining) will result in sections in which the trained microscopist will be able to differentiate the various cells at least as easily as in smears.

Review of the histology of the marrow explains some of the errors inherent in the smear technique. The marrow framework is made up of reticulum fibers and reticulum cells. Venous sinusoids, arterial capillaries as well as larger vessels are supported by reticular fibers in this framework. The hematopoietic cells, depending on the individual cell type, are dispersed singly or in groups, and are found in varying degrees of fixation by the reticular fibers. Consequently when aspiration and then smear is performed, the frequency with which a given cell is found in smear is a function of its location in the marrow, particularly the degree to which it is hemmed in by other marrow cells and the degree to which it is bound by reticulum fibers, as well as a function of the number of that cell in the marrow.

Reticulum cells, which are most completely invested by reticulum fibers, are found much less frequently in smears than in sections, while the cells circulating in the sinusoids are found in higher percentage than they actually exist in the marrow. In some marrow smears the only cells seen are those derived from the circulating blood, giving a completely false impression of the constitution and cellularity of the marrow.

Plasma cells are located inside the reticular fiber framework of arterial capillaries and consequently are rarely seen in smears except in multiple myeloma. If this network is rup'ured the plasma cells may be found in groups of 2 to 5 cells in isolated areas in the smear and given undue weight or missed entirely in a count based on random enumeration of a marrow smear.

The presence or absence of megakaryocytes has great diagnostic significance in the differential diagnosis of the various types of thrombopenias. Study of sections will demonstrate the presence of megakaryocytes when none have been seen in the corresponding smears, thus validating the diagnosis of primary thrombopenic purpura.

Conversely, where megakaryocytes are absent or extremely rare in sections one may be sure that a similar situation exists in the marrow. Marrow sections rather than smears are more reliable preparations upon which to base the statement that megakaryocytes are indeed absent or greatly reduced.

The absolute cellularity or degree of fibrosis of the marrow may be difficult if not impossible to estimate from the smear. An acellular smear may be obtained from hypercellular, normocellular or hypocellular marrows. Some of the most densely cellular marrows, as in carcinomatosis, leukemia, or polycythemia, may constantly yield acellular smears. If two successive attempts at aspirating marrow have failed to yield a satisfactory smear or section, a surgical biopsy should be performed, since in 85% of such cases an abnormal marrow will be found.

Granulomas of various nature are always found more frequently in section than in smear since the granulomas are broken up by the smearing process. Other lesions which may exist in nodular form as multiple myeloma, metastatic carcinoma, or lymphosarcoma are discovered in higher frequency in section than in smear. Conversely, one may rarely smear out a normal lymphatic nodule resulting in an abnormally high percentage of lymphocytes leading to a diagnosis of a lymphoma, whereas a study of sections will reveal a normal marrow.

In certain diseases, study of the marrow architecture, as well as marrow cytology, may reveal a pathognomonic histopathology when corresponding smears fail to yield diagnostic information. For example one may differentiate with greater accuracy pernicious anemia from other megaloblastic and erythroblastic hyperplasias, chronic myelogenous leukemia from leukemoid reactions and from the regenerative, hyperplastic stage of an acute toxic neutropenia, and primary from secondary polycythemia. In section, primary polycythemia untreated by irradiation or cytotoxic drugs has an appearance which is practically pathognomonic. Diseases of reticulum cells as the fat storage diseases are diagnosed with greater accuracy by study of sections than of smears since the reticulum cells are so rarely seen on smear.

One of the most frequent errors in the interpretation of smears has been that of making a diagnosis of leukemia on the basis of an acellular smear. Although an acellular smear may be obtained from patients with leukemia, all leukemic marrows except about 4% of cases of chronic myelogenous leukemia, have densely cellular marrows. In the past 2 years I have not infrequently encountered cases of acute neutropenia, hypersplenism, metastatic carcinoma, myelofibrosis with myeloid metaplasia and primary refractory anemia diagnosed incorrectly as acute or chronic leukemia because of the finding of an acellular smear with an elevation of the percentage of stem cells. Examination of sections of the marrow in these cases would have almost certainly avoided this error.

The percentage distribution of cells as well as the total cellularity of the marrow cannot be determined except to a very rough qualitative degree in smear. Consequently in an attempt to trace the effect of therapy upon marrow by the study of smears alone one is faced with the fact that variations in the technique itself are usually as great as those resulting from therapy. Sections are absolutely irreplaceable in this regard.

I have tried to explain and enumerate some of the diagnostic errors encountered in the examination of smears of marrow aspirates as well as to list the situations in which examination of sections could be of service. In spite of the numerous pitfalls awaiting the unwary or the overenthusiastic in the examination of these smears, I would like to emphasize that their study has a definite place in clinical medicine today. I hope that this presentation of the errors inherent in the technique of examination of marrows will increase the accuracy of deductions based upon examination of smears of marrow aspirates.

Dr. Louis R. Limarzi, Associate Professor of Medicine: Sections have a definite place in the study of bone marrow. They are useful in certain research projects and are sometimes helpful in the diagnosis of metastatic carcinoma, aplastic anemia, myelofibrosis or myelosclerosis, and certain granulomas involving the bone marrow. Nevertheless, smears are fully as important as sections and the latter method should always be correlated with the former in establishing a diagnosis. There is no "all inclusive" method of studying bone marrow. Furthermore, errors are inherent in all methods used. If we consider

the overall indications for sternal marrow study, only a small percentage of cases require examination of sections while in the vast majority smears are entirely adequate for diagnosis, superior in cytologic detail and more economical of time and money. At least 48 hours are required for the preparation of sections whereas only minutes are necessary with smears. With a busy hematologic service the economy of the smear method is soon evident. Any comparative study of the two techniques must be evaluated according to the method of preparing marrow smears. Many workers doing occasional or even frequent marrow studies have not learned how to prepare acceptable smears. Proper technique of aspiration, smearing, and staining is mandatory for optimal interpretation. Unfortunately, Dr. Block has not shown us any of his smear preparations for comparison with the sectioned material.

In the acute leukemias cellularity of the marrow is of no diagnostic importance. Morphologic identification of leukemia cells is the important point. In the chronic leukemias cellularity is important and can usually be ascertained with proper aspiration technique. We determine this by the percentage of packed nucleated cells in a centrifuged heparinized aspirate.

I would question the statement that there is a characteristic bone marrow picture in polycythemia. Marrow study provides confirmatory but not diagnostic evidence of this disease.

Myeloma cells, Gaucher's cells, metastatic tumor cells and other specific cells seen in Niemann-Pick's disease, neuroblastoma, histoplasmosis, kala-azar and megaloblastic erythropoiesis are found on film preparations; and the additional architectural arrangement of these cells as observed in histologic material adds nothing to the diagnosis. We have found smears to be sufficiently accurate in the evaluation of megakaryocytes for all routine purposes. Our experience in the study of over 5,000 bone marrow preparations has emphasized the fact that the exclusive use of sectioned material often leads to error in the morphologic identification of specific types of cells. This has been confirmed by most morphologists and hematologists; even after the use of special staining techniques. The error in the identification of the several types of myeloma cells as described in the literature is due to the exclusive use of sectioned material. The "L.E." cell seen in bone marrows smears (heparinized bone marrow) from cases of acute disseminated lupus erythematosus will be missed if Doctor Block's method of studying bone marrow is used exclusively.

Finally, a word as to the proper use of bone marrow examination. This procedure is an adjunct to diagnosis and as seen may alone lead to the proper evaluation of the prognosis and diagnosis. However, sternal marrow examination should not be done before all the possible information has been obtained from the history, physical examination and complete study of the peripheral blood picture. Then, if a diagnosis is not available, a sternal puncture is indicated. Even then, in inexperienced hands, a dry tap or an improper aspiration may lead to an incorrect diagnosis.

Dr. Block: I will agree that most hematologic conditions may be diagnosed by the marrow smear, but I maintain that certain entities will be missed unless sections are examined. In the case of polycythemia vera no other condition resembles the appearance of the sectioned marrow. We have fifteen to twenty cases in which we feel that we can make the diagnosis merely by examining the bone marrow section. I would question the statement that cellular morphology is diagnostic of acute leukemia. At the International Congress of Hematology at Buffalo in 1948 there was an exhibit of approximately 12 cases of metastatic carcinoma incorrectly diagnosed as acute leukemia on the basis of smears of sternal marrow by experienced hematologists at the University of Michigan.

Dr. Harry A. Waisman, Research Associate in Pediatrics: In some of our acute leukemias we have performed marrow aspirations on fifty or more occasions. Is it possible that we might induce a local fibrous reaction as a result of these repeated punctures?

Dr. Block: We have never seen such a reaction.

Dr. Waisman: We have also seen cases clinically diagnosed as leukemias which were called lymphosarcomas by the Department of Pathology. May this error be due to our technique of aspirating marrow?

Dr. Block: Actually, material obtained at autopsy is practically worthless as far as cytologic study is concerned. The cells must be

fixed immediately or they begin to hollow out, the chromatin begins to clump and the difference between chromatin and parachromatin becomes intensified. In such cases I would ordinarily rely on the material obtained during life. I feel that lymphosarcoma and lymphatic leukemia are essentially similar. The latter involves more tissues and organs, especially the marrow and also gives rise to more lymphocytes in the peripheral blood.

Pitfalls in Colon Surgery

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We propose to discuss some phases of large bowel surgery which offer opportunities for error in judgment as well as in technical management.

The most frequent complication of malignancy in the colon is the development of some degree of obstruction. While it is true that most patients with this condition give a history of digestive upsets and changes in bowel habit, nevertheless, the occurrence of obstruction may be of such suddenness as to cause panic in the patient and family and occasional discomposure in the doctor—a situation which too often leads to ill-advised and ill-timed surgical intervention.

In our experience, it is most unusual to subject a patient to immediate operation. The methods of decompressing the large bowel find greater and greater usefulness as the surgeon becomes more familiar with the various technics which can be employed under these circumstances.

Too much emphasis cannot be placed on the use of nasal suction by the Wangensteen method or the Miller-Abbott tube. It is frequently stated that these suction methods will decompress the small bowel but will have little influence beyond the ileocecal valve or the area between it and the obstructing lesion beyond. Fluoroscopy has demonstrated that very few ileocecal valves are actually competent. Most of them permit regurgitation of gas and liquid from the large bowel into the terminal ileum.

The rather common excuse for an ill-advised emergency laparotomy is that there is little hope of decompressing the so-called "trapped" segment, which lies between the ileocecal valve and the obstructing lesion. If the lesion is low enough in the left colon to be reached by the proctoscope without much manipulation, one may find it comparatively easy to pass a small rectal tube or even a small catheter carefully through the obstructed segment. With the catheter or small rectal tube in place, one may irrigate and relieve the gaseous distention of the large bowel proximal to the lesion.

One should not attempt the passage of the rectal tube or catheter unless he has had adequate training in proctoscopy. It is alarmingly easy to perforate friable walls.

A very vicious practice, which has resulted in disaster on a number of occasions, is the ill-advised use of pituary-like injections which produce vigorous peristalic movements of the intestines. When the obstruction is located in the left colon and there is distention of the large bowel proximally, the occurrence of vigorous peristalic movements can distend the

cecum to a point where rupture of its thin wall may occur.

It cannot be denied that some unusual conditions resist all attempts to decompress the large bowel either from below or above. For these patients one should plan a method of surgical relief which will be most helpful to the patient, and at the same time not handicap the surgeon in any future operation which may be necessary for the radical removal of the obstructing lesion.

It must be remembered that more than 85% of the tumors of the large bowel are found in the sigmoid and rectum. With this in mind, it is obvious that colostomies which have their openings on the left side of the abdomen may seriously impede exposure and exploration of the sigmoid and rectum. Cecostomies or transverse colostomies are farthest removed from the commonly made incisions for resections of portions of the sigmoid and rectum.

In a previous article one of us has described a simple cecostomy which will give adequate decompression in most cases of large bowel obstruction. It is an interesting fact that the relief of distension by cecostomy is usually followed by patency of the obstructing lesion. The edema and inflammatory reactions often subside to a degree which will admit of the passage of gas and fluid through a previously completely obstructed segment.

Irrigation through the cecostomy and through the anus may aid in dislodging small fecal bodies which tend to plug the narrow lumen. One irrigation is not an efficient test of the method because it is sometimes necessary to repeat the irrigations two or three times a day for several days before one is rewarded by the passage of gas and liquids through the normal channel.

We have been impresed by the local changes in and about the carcinoma which follows the employment of decompressive measures. Many surgeons maintain that a Mikulicz type of operation offers unusual advantages in the obstructed or partially obstructed large bowel. The very suggestion that this operation can be employed in patients with partial or complete obstruction has led to many injudicious interventions. In these cases the tumor is mobilized and the mesentery divided, one cannot avoid cutting across lymph channels which drain the inflamed infected tumor area. The manipulations which must be indulged in during the mobilization of the tumor tend to contaminate liberally the site of operation.

Any attempt to suture the parallel loops above and below the exteriorized tumor is fraught with great danger because of the friable nature of the thin distended segment proximal to the obstructive lesion. The amount of gland bearing mesentery which can be removed safely in a primary resection with end to end anastomosis is greater than with any other type of operation which contemplates restoration of bowel continuity. The fact that the two parallel loops which come to the surface must retain the mesentery which equals the distance from the posterior position of the bowel to the level of the bowel stomata limits the amount of mesentery which can be removed.

Another pitfall for many surgeons is the employment of some type of so-called "aseptic method" of anastomosis following resection of a malignant tumor of the colon.

We would like to express our views and call attention to several serious defects in the technic employed in these operations. Most of the operations of the aseptic type are done over specially designed clamps which hold the crushed ends of the two segments within their grasp. We have repeatedly called attention to the danger of crushing issues which are to become a part of a line of anastomosis. Crushed tissues are devitalized tissues and thus offer a favorable site for infection, abscess formation and necrosis. Since the crushed tissues extend around the entire circumference of both segments, there is great danger that infection will invade some part of either of these two ends. Add to the already devitalized ends, the employment of a continuous suture around the entire circumference at a short distance above and below the crushed tissue, and you are further jeopardizing the union of these divided ends.

There is added danger in the use of continuous sutures; they tend to constrict the lumen. There is also the danger that a well developed diaphragm may follow the line of anastomosis. In previous reports we have spoken of the difficulty of suturing the large bowel without passing the needle into the lumen at some point in

the suture line. Our experience seems to leave little doubt that the less often we have to employ surgical decompression and the more frequently we can decompress the large bowel by non-surgical methods, the better our results will be.

A bowel which is not distended and one whose bacterial flora has been reduced by suitable bacteriostatic drugs, should offer favorable results if the healing capacities of the tissues are not interfered with by technical trauma.

There is the further requirement that the general healing power of the patient be brought to the highest level by all of the modern methods of preoperative preparation. When these requirements are met, there seems to be little doubt that primary resection with immediate end-to-end suture of the large bowel can be employed in most of the accessible regions.

Our experience leads us to the conclusion that over-suturing and excessive infolding at the suture line, associated with devitalizing continuous sutures, are the greatest obstacles to successful repair in large bowel surgery.

No paper dealing with this type of surgery should fail to emphasize the importance of tissue healing. The more completely we are acquainted with the physiology of tissue repair and regeneration, the better foundation we shall have for our operative technic and pre and postoperative care.

Certain measurable indices have been established with some accuracy by which we can predict the healing capacities in a given case. Vitamin C levels in the blood offer a fair index of the connective tissue healing efficiency. Patients with blood levels of less than .70 mg. per cent are not considered good risks. Those whose blood proteins are less than 6.5 mg. per cent are likely to be delayed in their recovery.

In most patients with normal or nearly normal tissues an end to end anastomosis will be at its weakest sometime between the 4th and 8th post operative day. During the first three days, if the suture line is mechanically well approximated, the sutures themselves will keep the tissues firmly united within their grasp. The plastic exudate will cement the area between the sutures but true tissue regeneration will not have taken place. After the fourth day the tissue within the grasp of the suture will have undergone ischemic necrosis but tissue regeneration will not as yet have made itself felt to any degree. It will thus be seen that from the 4th day on, the efficiency of the suture is lessening, and it will be necessary for the tissue repair and regenerative processes to preserve and complete the union of the two ends of the bowel. Great caution should be taken to protect the suture line from strain during these critical four or five days.

Suction and an indwelling rectal tube will serve to limit distention. Food by mouth is withheld and larger accumulations in the repaired bowel are prevented.

SUMMARY

The appearance of obstruction in lesions of the large bowel is not the signal for immediate surgery. In most cases the bowel can be decompressed by judicious use of suction from above and irrigation from below. Surgical decompression should be thoughtfully designed to facilitate subsequent surgery. The Mikulicz operation should rarely be used. Sound principles should govern the use of suture repair of the colon. Aseptic methods are less in demand without bacteriostatic drugs. Tissue crushing of the bowel ends is a deterrent to early union. The value of improving the general healing capacities of the individual patient cannot be overemphasized. Knowledge of the healing cycle in united intestines must govern the employment of decompression measures and suggest the limitation of liquid and food intake by mouth.

CASE RECORDS OF THE COOK COUNTY HOSPITAL

KARL MEYER, LEO M. ZIMMERMAN, DEPT. EDITORS

Resection of the Liver for a Hamartoma

Edward Kallal, M.D., Resident in Surgery
and
David Movitz, M.D., Associate in Surgery

There are very few reported cases of resection of the liver for solitary hamartomas. The following case report is of a patient with a tumor-like enlargement in the left lobe of the liver which was resected and which, on microscopic study, proved to be a solitary hamartoma.

A 67-year old white male, Admission No. 50773, a baker, entered Cook County Hospital on January 4, 1950, with the complaint of an epigastric mass which was first noticed by the patient three weeks previously. This had gradually enlarged in size. Epigastric pain accompanied the appearance of the mass, and was most distressing when the patient bent over. The pain was non-radiating, and bore no definite relationship to food-taking. There was no anorexia, nausea nor emesis, and no abnormal stools, except for a diarrhea of short duration. A weight loss of only five pounds in the past year was incurred. There was a past history of genito-urinary symptoms relieved by a suprapubic prostatectomy at Cook County Hospital approximately 10 years ago.

Physical examination revealed a thin, elderly-appearing, not acutely ill, cooperative white male, whose temperature was 98.6°, pulse 80, and respiration 16 per minute. The blood pressure was 150/80. The teeth were carious. The chest was emphysematous, and a marked dorsal kyphosis was present. The lungs were clear. The heart borders were within normal limits. Rhythm was regular; no murmurs or thrills were present. The second aortic sound was more intense than the first. The abdomen, on inspection, was scaphoid, and presented a symmetrical, globular protrusion in the epigastrium. On palpation, this mass measured about 10cm. in diameter, was rounded, smooth, firm and was not tender. It moved with respiration, and could not be delineated definitely from the liver by palpation or by percussion. The liver was palpable down to one cm. beneath the costal margin. The spleen and kidneys were not palpable. Abdominal tenderness elsewhere and rigidity were absent. No herniae were noted.

From the Surgical Service of Dr. L. M. Zimmerman Department of Surgery, Chicago Medical School.

There was a healed midline suprapubic scar. Peristaltic sounds were of the usual frequency and quality. The genitalia were those of a normal adult male. The extremities presented no unusual changes. Rectal examination was negative, and reflexes were physiological.

Laboratory studies revealed a hypochromic anemia with hemoglobin of 36 percent. The erythrocytes numbered 2.53 million per cu. mm.; the white blood cell count was 15,100 per cu. mm.; the differential revealed 79 percent polymorphonuclear neutrophils, 6 percent lymphocytes, 12 percent monocytes, and 3 percent bands. Cephalin flocculation, O; Thymol turbidity, 2.6 units; Gamma turbidity, 8.4 units; Total proteins, 6.4 gms. percent; Cholesterol, 95 mg. percent with 34.6 percent esters; Alkaline phosphatase, 2.44 units; Icterus index, 5 units. The nonprotein-nitrogen varied from 26 to 34 mg. percent. Free hydrochloric acid was present in fasting gastric content without histamine. Stool cultures were repeatedly negative for pathogens. Occult blood was persistently 3 plus to 4 plus. Urinalysis revealed specific gravity 1.013; trace of albumin; no sugar. The microscopic was negative.

X-ray studies revealed a normal chest. A flat film of the abdomen was interpreted as within normal limits except for the liver shadow which appeared to be slightly increased in size. Osteoarthritic lipping of the lumbar vertebrae with sacralization of lumbar-5 was noted. Barium meal study revealed a normal esophagus. The stomach filled and emptied satisfactorily. The rugal pattern of the stomach was undisturbed. There appeared to be an extrinsic pressure, however, against the lesser curvature. The duodenal bulb and upper small bowel appeared within normal limits. Barium enema studies, which were repeated, revealed no definite pathology. The transverse colon appeared to be displaced slightly downward in its middle third.

Gastroscopy was interpreted as revealing a picture compatible with an extrinsic mass impinging on the lesser curvature. The angulus incisura was apparently seen, but the antrum and lesser curvature were not visualized due to the fact that the mucosa pressed toward the objective. The mucosa of the posterior wall appeared slightly pale. Proctoscopic examinations revealed no pathology.

During the hospital course, the patient was afebrile. The diarrhea, present on entry, cleared spontaneously a short time after admission and the white blood count returned to normal. The patient was prepared for exploratory operation with multiple blood transfusions and oral sulfasuxidine. On February 27, 1950, laparotomy was performed (L. M. Z.) through a high left paramedian incision. A firm, apparently smooth density in the substance of the inferior margin of the left lobe of the liver was encountered. It was situated at the base of the falciform and round ligaments and was exposed by severing these ligaments from the liver. The gastrointestinal tract, spleen and extrahepatic billary tree were normal on exploration.

The mass was resected after circumventing it with through and through mattress sutures. The remaining gaping liver edges were then approximated. The abdomen was closed in layers.

The mass, on section, presented dense grayish fibrous tissue with softer areas and a grayish liquified center, whose cavity was lined by a smooth grayish wall. The fluid was sent to the laboratory for culture and was subsequently reported as negative for pathogens.

The post-operative course was entirely uneventful. The patient became afebrile on the fourth post-operative day and was discharged from the hospital on the tenth post-operative day without any complaint.

The pathologist, Dr. Alex B. Ragins, reported the specimen as follows: Specimen consists of a portion of liver measuring 8 x 4.5 x 5 cm. and covered by firm fibrous adhesions and ligamen-

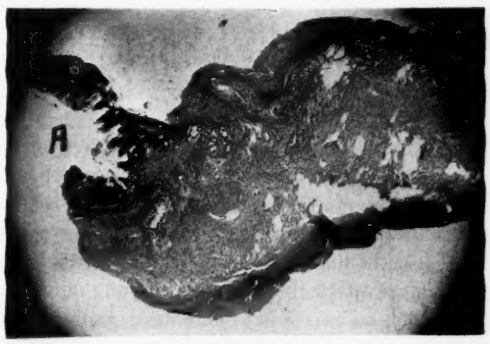

Figure 1. Low power section through hamartoma of liver, A. Cystic cavity in portion of the mass.

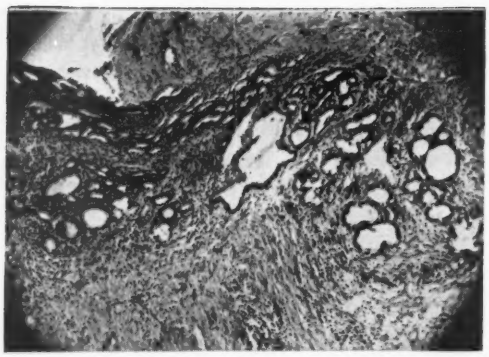

Figure 2. Photomicrograph showing connective tissue, blood vessel and bile duct proliferation.

tum teres. On sectioning, there are numerous gray, firm areas measuring up to 2 cm. in diameter. Microscopic: a hamartoma of the liver, characterized by proliferation of bile ducts, connective tissue, and blood vessels. (Figure 2)

DISCUSSION

The term hamartoma was first proposed by Albrecht[1] to designate tumor-like enlargements which are due to errors in development, and which are considered to be non-neoplastic in nature. They consist of normal histologic elements, but in abnormal mixture. The proportion of fibrous tissue is usually distinctly increased. These lesions possess a limited capacity for aberrant growth.

In his original presentation, Albrecht reported a hamartoma of the liver which was mainly hemangio-cavernomatous, and one of the kidney of a fibro-canalicular variety. They have also been observed in the lung, in the gastrointestinal tract, in the brain arising from its blood vessels, and as disseminated lesions within certain anatomical systems such as the skin or the nervous system. Hamartomas are rather uncommon, and the greatest number has been noted in the lung.

In the liver, most hamartomas are seen as small hemangiomatous enlargements which are found incidentally at autopsy. Solitary lesions are found in normal livers, and multiple ones in cirrhosis. Clinically, hamartomas of the liver occur most often in infants and young children, although our case was in an elderly male. They are variable in size and present as small or large upper abdominal masses, particularly in the epigastrium and right upper quadrant. They usually require pyelograms and gastro-intestinal x-ray studies for their localization. They may remain stationary in size for some time, confirming their limited capacity for aberrant growth.

The right lobe of the liver is the most often involved, but hamartomas occur in the left lobe, or in the caudate lobe, and even both lobes have been reported to be involved. Liver hamartomas have been resected successfully and reported in three previous instances. Ladd and Gross[2] in 1941 reported the successful removal of a hamartoma in the right lobe of the liver of an 8-month old infant. Benson and Penberthy[3] reported in 1942 a successful resection of a hamartoma in a 7-month old infant. Patton[4] in 1948 resected nearly half of the right lobe of a liver in a 16½-month-old female infant and removed a hamartoma measuring 8 x 7 x 4 inches. The infant recovered uneventfully. We are adding a fourth case of resection of a liver hamartoma with uneventful convalescence. In the case of Kay and Talbert[5] a large nodular tumor replaced the left lobe and half of the right lobe and thus could not be removed. The tumor had been present for about two years before the biopsy, and two years after biopsy the patient still remained well. This tends to confirm the non-neoplastic character of this entity.

The patient presented here experienced a gradual but marked reduction in the size of the epigastric mass during the preoperative hospital stay. This reduction in the size was apparently due to a reduction in the quantity of cystic contents within the hamartoma. As demonstrated

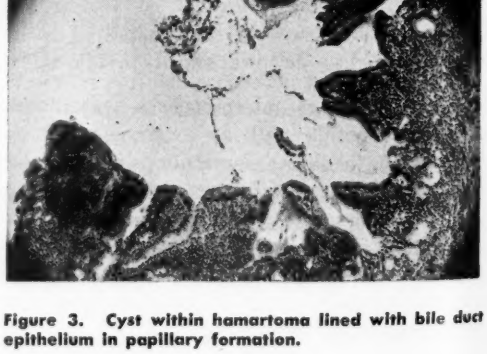

Figure 3. Cyst within hamartoma lined with bile duct epithelium in papillary formation.

by the photomicrograph, this cystic portion was lined by papillary formation of bile duct epithelium (Figure 3). The case of Patton also revealed a cystic formation[4].

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NERVOUSNESS INHERITED

We are only now beginning to understand how devastating parental anxieties, whatever their source, are to the child's peace of mind. Many factors may be responsible for this state of affairs: the radio, magazines, newspapers and books on child rearing may contribute to the parent's feeling of inadequacy. These feelings are often reinforced by the conflicting opinions of "experts" regarding basic principles of child rearing. Perhaps our own lack of understanding of this problem may also be important. It is safe to assume that parental insecurity is far more common in our culture than has been generally recognized. Huschka and McKnight, working in a well-baby clinic, found all but 5 mothers out of 57 "had complaints in regard to their babies." In 3 of the remaining 5, maternal anxieties "were interfering with emotional development of the child." Langford reports the incident of a fourth year medical student who spent two hours taking a history and examining a child brought to the clinic because of "nervousness." Unable to discover the cause he appealed to the instructor, who, through a single question, found the mother was suffering from a paranoid psychosis. He adds the mother "who brings in her child for a physical disorder is often equally as revealing of the concerns, worries and preoccupations which have emotional significance for her and for the child." Further, the mother may carry over into her relationships with her child "unresolved conflicts in her relationship with her own parents." The recognition of parental insecurity as it relates to the problems of children and helping parents deal with it, presents many opportunities for promoting mental health. *Excerpt: The Physician and Mental Health, Reynold A. Jensen, M.D., Minneapolis, The Wisc. Med. J., June 1950.*

NEWS OF THE STATE

ADAMS

Medical Society Celebrates Centennial.—A public celebration will mark the one hundredth anniversary of the Adams County Medical Society in October. The observance will feature exhibits of the advances made in medicine during the past century, an historical pageant depicting the advance in medical science, a parade and a prominent speaker. Everything will be open to the public. There will be no charge except for the admission to the pageant itself. In announcing the observance, Dr. Harold Swanberg, general chairman of the project, said that the Adams County Medical Society will underwrite the cost as a public service activity.

BOONE

Personal.—Dr. Bernard E. O'Malley, Belvidere, was recently appointed city health officer.

Ninety Years of Age.—Dr. A. W. Swift, Belvidere, observed his ninetieth birthday July 16. Dr. Swift, who is now in retirement because of ill health, practiced medicine in Belvidere for sixty-five years. With the exception of six years, he has been a lifetime resident of Boone county. He once served as mayor.

CHAMPAIGN

Golden Anniversary Wedding.—An open house marked the golden wedding anniversary of Dr. L. O. Sale and his wife, Margaret, recently. Dr. Sale has been practicing in Champaign county for fifty-four years. Dr. Sale is a former president of the Champaign County Medical Society.

Personal.—Dr. G. F. Whitlock of the Carle Hospital clinic staff was chosen president of the Champaign-Urbana Camera Club recently.

CRAWFORD

Dr. Kirk at County Fair.—Dr. J. W. Kirk, who has practiced medicine for fifty-two years in Oblong, was honored September 7 on "Dr. Kirk Day" at the Crawford county fair.

FULTON

Dr. Davis Honored.—Dr. E. E. Davis, Avon, was recently presented with the Fifty Year insignia of the Illinois State Medical Society, indicating his completion of fifty years in the practice of medicine. The presentation of the insignia was made by Dr. Andy Hall, Mount Vernon. Other speakers were A. W. Ray, Avon, 43rd district legislator, and Dr. C. Paul White, Kewanee, President-Elect of the Illinois State Medical Society. Dr. A. C. Bagge, Avon, president of the Fulton County Medical Society, presided.

COOK

Society News.—Dr. Leon Unger recently addressed the Rock Island County Medical Society on "The Treatment of Bronchial Asthma" and discussed "Migraine" before the Annual Laity Day meeting of the medical auxiliary in Moline.

Personal.—Dr. George Halperin, associate editor of the Journal of the American Medical Association and editor of its current medical literature department, has been elected president of the seventy-seven-year-old Chicago Literary Club. His term begins October 9.—Dr. Loyal Davis, Grunow professor of surgery and chairman of the department at Northwestern University Medical School, has been selected to represent the American College of Surgeons in the division of medical science on the National Research Council, it was announced July

25. Dr. Davis' appointment is for a period of three years.—Dr. David A. Willis, associate professor of surgery, Chicago Medical School, and attending surgeon, Mount Sinai Hospital, has been awarded a European Traveling Fellowship by the World Health Organization of the United Nations. The fellowships are awarded for the purpose of observing and studying medical educational methods in a number of European countries, the itinerary for which is arranged by the Geneva office of the World Health Organization. Dr. Willis will leave Chicago in September for a period of three months.—Dr. Harwell G. Davis Jr., Birmingham, Ala., has been appointed director of laboratories at Evanston Hospital.

Personal.—Appointment of Mrs. Hale C. Pragoff as medical social work consultant to the National Society for Crippled Children and Adults has been announced by Lawrence J. Linck, executive director. Society office headquarters are located at 11 South La Salle Street, Chicago 2. As medical social work consultant, Mrs. Pragoff will interpret specific needs of the handicapped to other national organizations for the National Society in the development of medical social services.

Special Society Elections.—At the annual meeting of the Chicago Society of Internal Medicine, May 22, the following officers were elected: Dr. Howard L. Alt, president; Dr. Frank B. Kelly, vice president; Dr. Ernest G. McEwen, secretary-treasurer; and Drs. Henry T. Ricketts, George H. Coleman and Sidney Strauss, executive committee.—The Chicago Gynecological Society elected the following officers at its annual meeting June 16: Dr. John I. Brewer, president; Dr. M. Edward Davis, president elect; Dr. Paul C. Fox, vice president; Dr. Fred O. Priest, treasurer; Dr. Edward M. Dorr, secretary; Dr. Alfred J. Kobak, pathologist and Dr. Lester D. Odell, editor.

The Volini Laboratories.—The Hektoen Institute for Medical Research of Cook County Hospital has named its antibiotic laboratories the Volini Laboratories in honor of the late Dr. Italo F. Volini.

Robert Kark Promoted.—Dr. Robert M. Kark has been promoted to the rank of professor of medicine at the University of Illinois College of medicine. He has been serving as associate professor of medicine and also as chief of clinical investigation of the U. S. Army Medical Nutrition Laboratory of Chicago.

Coordinator of Cancer Teaching Program Named.—Dr. Philippe Shubik, a graduate of the University of Oxford, has been appointed to the faculty of the Chicago Medical School as coordinator of the cancer teaching program, it was announced recently.

Dr. Shubik taught pathology at the Sir William Dunn School of Pathology, Oxford, and at the same time was engaged in cancer research, working on the mechanism of artificial production of tumors in animals. Since last June he has been teaching and doing cancer research at Northwestern University.

Under Dr. Shubik's direction, additional courses on newer methods of the diagnosis of cancer and their evaluation will be set up at the school. Also, short courses on experimental work in cancer, with careful consideration of all the newer therapeutic agents in use for cancer. A new cancer research unit will be set up, and all teaching related in any way to cellular growth will be carefully studied, and recommendations put forward to ensure that the students will have the background necessary for a full understanding of the cancer problem.

Future plans include the establishment of a system through which the occupational backgrounds of cancer patients coming through the School clinics will be studied and recorded — this to be combined with research activities.

University News.—Dr. Arthur F. Mead has been awarded the 1950 Leo F. Miller prize at the University of Illinois College of Medicine for his extensive study in the field of orthopedic surgery. Awarding of the prize, which carries a fifty dollar stipend, was announced by Dr. Fremont A. Chandler, professor and head of the department of orthopedic surgery. The prize-winning study was entitled "Orthopedic Implications of Fluorine."—The appointment of Dr. W. Glen Moss as an assistant professor of physiology at the University of Illinois College of Medicine has been announced by Dean Stanley W. Olson. Dr. Moss received his bachelor of arts degree from the University of Wichita, his master of arts degree in physiology from the University of Chicago, and his doctor of philosophy degree in physiology from the University of Illinois. Between 1942 and 1948, Dr. Moss performed research and served as an instructor in the department of physiology at the University of Illinois, contributing extensively to the field of experimental hypertension, particularly regarding the role of renal extracts and the nervous system. Prior to his present appointment, Dr. Moss served as an associate professor of pharmacology at Temple University School of Medicine.—New faculty appointments at the Chicago Medical School include Dr. Jacob S. Fishman, associate in medicine; Dr. Milton M. Kadin, assistant in medicine; and Dr. Morris D. Bennin, assistant in opthalmology. Dr. Solomon C. Werch has been appointed assistant professor of medicine and will serve also as director of the dispensary as well as director of teaching of the residents and internes at Mount Sinai Hospital. Dr. Werch recently came from the University of Colorado College of Medicine where he served as head of the department of medicine at one of its teaching hospitals.

Research Award Established.—An Annual Meritorious Research Award has been established for the Chicago Medical School by an anonymous friend. The award, amounting to two hundred fifty dollars will be given to a faculty member who is considered to have done the most outstanding research work in the year's period. Dr. Leo B. Zimmerman is chairman of the committee which

is responsible for determining to whom the award shall go.

Research Grants.—Three new research grants amounting to $15,265 have been awarded to the Chicago Medical School. One, an extension grant of $14,000 for the program of cardiology, was awarded by the U. S. Public Health Service upon recommendation of the National Heart Institute. Another, in the amount of $825 has been received from the committee for research in problems of sex of the National Research Council. This grant will be used by Dr. George Clark for a study on the role of the hypothalmus in sex behavior. The other grant of $440 from the Veterans Administration will also be used by Dr. Clark for a research problem on the use of domestic protargol in staining nerve endings in gums and teeth.—The U. S. Public Health Service has awarded three research grants in the total amount of $35,936 to the University of Illinois College of Medicine. A continous grant in the amount of $15,000 has been received for the study of the effects of the betatron. Previous aid has been used for the investigation of the x-ray beam of the betatron and the continuation grant will be used in support of the investigation of the electron beam on bone and cartilage. The study is under the supervision of Dr. Roger A. Harvey and G. A. Bennett. Dr. Klaus R. Unna has received a $13,610 grant in support of a study concerning the site of action in the central nervous system of drugs useful in spastic conditions. A continuation grant in the amount of $7,326 has been given to Dr. David Shakow for the analysis of psychological data on schizophrenia.

Public Health Institute.—The University College of Northwestern University and the United States Public Health Service held an Institute in Administration for Public Health Officials at Abbott Hall, 710 Lake Shore Dr., Chicago, July 17 to 29.

The Institute dealt with administrative problems and trends encountered by public health physicians. The program included lectures by specialists, group discussion, interest conferences, and special problem seminars.

Instructors and discussion leaders included members of the Northwestern faculty and specialists in public relations, personnel management, business administration, municipal government and community sociology.

Among these specialists were Dr. Hugh Duncan, specialist in sociology; David Cox, public relations consultant; Dr. Charles S. Hyneman, professor of political science; Dr. Franklyn S. Haiman, instructor in public speaking; Dr. A. C. Van Dusen, associate professor of psychology and director of the summer sessions; Dr. Myron H. Umbreit, director, evening division, School of Commerce. Dr. E. T. McSwain, Dean of the University College, was the coordinator.

MADISON

New Township Officers.—Dr. B. L. Roberson, Wood River, was recently installed as president of the Wood River Township Medical Society, succeeding Dr. Maurice Woll. Other officers are Dr. H. S. Mendelsohn, vice president; and Dr. Anthony Sammis, secretary treasurer.

Groves Smith Host to County Society.—Dr. Groves B. Smith, superintendent and medical director of Beverly Farm, Godfrey, was, with his wife, host to the Madison County Medical Society and their families. The evening included a buffet supper and fireworks.

MORGAN

New Health Officer.—Dr. James W. Chapman has been named director of the Morgan County Health Department, effective July 1. Dr. Chapman was formerly in charge of two state districts, fifteen and sixteen, and previously worked in Michigan, Missouri, Tennessee and California.

JEFFERSON

Hospitals to Handle Wednesday Afternoon Calls.—The Jefferson-Hamilton County Medical Society announced recently that all calls by persons requiring the services of physicians on Wednesday afternoons should be made to either Good Samaritan or Jefferson County Memorial Hospital, according to the Mount Vernon Register-News. The hospitals will establish registries to handle emergency medical service calls on the half-days the physicians close their offices.

PIKE

Personal.—Dr. and Mrs. W. W. Kuntz, Barry, observed their golden wedding anniversary, July 4. Dr. Kuntz has been practicing in Barry for about thirty years, having previously served in Baylis.

SANGAMON

Personal.—Dr. William H. McCain, formerly of Pana, has been appointed physician at St. John's Sanatorium. He will reside in Springfield.

WINNEBAGO

Personal.—Dr. John T. Small, Rockford, recently gave up his practice to accept a position as head of thoracic surgery at Olive View Sanatorium, Los Angeles.

HEALTH DEPARTMENT ACTIVITIES

Health Department Reorganized.—The first step in the reorganization of the state Department of Public Health to achieve greater efficiency and economy became effective August 1 when the department's present fifteen divisions were merged into six such units. Announcing the planned reorganization recently, Dr. Roland R. Cross, state director of public health said:

"An important end in view in the reorganization is improved efficiency and economy. Although the new groupings will probably be permanent, they are subject to changes which may be necessary to conform with recommendations not yet made by the Schaeffer Commission."

Under the new organization, the health department divisions will include the Division of General

Services, under B. K. Richardson who is now senior administrative assistant to Dr. Cross; Division of Personal Health Services, under Dr. Leonard M. Schuman, present acting chief of communicable diseases; Division of Hospital and Institutional Services, headed by Dr. G. Howard Gowen, present chief of the division of Cancer Control; Division of Local Health Services, under Dr. C. F. Sutton, who is now chief of the same division; Division of Environmental Health Services, under C. W. Klassen, present chief of the division of sanitary engineering; and the Division of Laboratory Services, which will remain under the direction of H. J. Shaughnessy, Ph.D.

Health agencies which will fall under the Division of General Services will include the Bureaus of Public Health Dentistry, Nursing, Statistics, Public Health Education, Administration, and Hotel and Lodging House Inspection.

The Division of Personal Health Services will include Bureaus of Epidemiology, Tuberculosis Control, Maternal and Child Care, Industrial Hygiene, and Preventive Mental Health Services.

Included in the Division of Hospital and Institutional Services will be the Bureaus of Hospital Planning and Construction, Licensure and Inspections, Cancer Control, and Heart Disease Control.

The Division of Local Health Services will coordinate activities of five regional health offices covering the state, and will maintain liaison with all local health departments.

Under the Division of Environmental Health Services will come Bureaus of Public Water Supplies, Stream Pollution, General Sanitation, and Milk and Food.

The Division of Laboratory Services will include Bureaus of Diagnostic Services, Sanitary Bacteriology, Biologic Products, Laboratory Evaluation, and Virus Diseases and Research.

The reorganization follows, in general, recommendations made by the United States Public Health Service, which recently completed an extensive survey of the organization and operations of the state health department.

MARRIAGES

DR. ALBERT LEE SPAULDING JR. to Mrs. Marva Trotter Louis, both of Chicago, May 20.

DR. HERBERT JANSON, Homewood, to Miss Mary Filson of Matteson, in Chicago, May 27.

DEATHS

ARSEN S. ARTIN, Enfield, who graduated at Northwestern University Medical School in 1899, died July 12, aged 77. He had practiced medicine in Enfield for 46 years.

GILBERT R. BREWER, Stonefort, who graduated at George Washington University School of Medicine in 1912, died July 3, aged 71. He had practiced medicine for 37 years, had served as mayor, and for many years as member of the school board.

LEILA DEETTE JACKSON, Evanston, who graduated at Rush Medical College in 1908, died May 23, aged 77

GEORGE H. FLICKINGER, Hopedale, who graduated at Chicago Medical School in 1934, died July 10, aged 46. He had served in the Medical Corps in World War II, and was a past president of Tazewell County Medical Society.

MILLARD M. FOWLER, Marion, who graduated at the University of Tennessee Medical Department, Nashville, in 1897, died April 5, aged 79.

WILLIAM J. GARARD, retired, Chicago, who graduated at Chicago Homeopathic Medical College in 1903, died July 25, aged 75.

ESLIE HELEN HARTMAN, Chicago, who graduated at New York University College of Medicine in 1942, died in a plane crash recently, aged 34. She was clinical instructor in medicine and medical adviser for women in the Health Service at the University of Illinois College of Medicine.

HAROLD E. JONES, Chicago, who graduated at Northwestern University Medical School in 1909, died July 10, aged 63. He was senior attending surgeon at St. Luke's Hospital.

EFFIE L. LOBDELL, Chicago, who graduated at Fort Wayne College of Medicine in 1892, died August 8, aged 83. She was formerly on the staff at Grant Hospital.

JOHN DAVID MCDONALD, Alton, graduated at St. Louis University School of Medicine in 1930; he was affiliated with Alton Memorial Hospital and St. Joseph's Hospital, where he died June 2, aged 44.

CHARLES H. RUCH, Momence, who graduated at Indiana University School of Medicine in 1926, died August 2, aged 54. He had been city health officer of Momence for several years and was a member of the staff of St. Mary hospital.

WILLIAM J. SCHAFFER, Chicago, who graduated at Jenner Medical College in 1908, died August 3, aged 73. He had been examining physician for the Chicago Park District Police Annuity and Benefit Association over 40 years.

ARNOLD SCHIMBERG, Chicago, who graduated at Northwestern University Medical School in 1927, died July 18, aged 48. He was instructor in surgery at Northwestern, and senior attending surgeon at Wesley Memorial Hospital.

FRANK J. SMEJKAL, Chicago, graduated at the University of Illinois College of Medicine in 1926, died August 4, aged 60. He was associate professor of medicine at Chicago Medical School, former senior physician at the Municipal Tuberculosis Sanitarium, and a member of the State Tuberculosis Board.

EDWARD S. STEWART, retired, Plainfield, who graduated at Northwestern University Medical School in 1892, died July 27, aged 88. He had practiced on Chicago's south side for 46 years before moving to Plainfield.

FRANK J. THEOBALD, Cary, who graduated at the University of Illinois College of Medicine in 1906, died July 28, aged 67. He had practiced medicine in Lake County for 46 years.

FRANK S. TUFTS, retired, Chicago, who graduated

at the University of Illinois College of Medicine in 1903, died July 12, aged 78.

RUDOLPH F. TUSSING, Chicago, who graduated at Northwestern University Medical School in 1936, died July 15, aged 44. He was radiologist and staff member at the Municipal Tuberculosis Sanitarium.

MORRIS R. WEIDNER, SR., Dolton, who graduated at the University of Illinois College of Medicine in 1883, died July 27, aged 93. He was a member of the "Fifty Year Club" of the Illinois State Medical Society and an emeritus member of the Chicago Medical Society and the University of Michigan Alumni Association.

LEVI J. WEIR, Marshall, who graduated at the Kentucky School of Medicine, Louisville, in 1893, and Rush Medical College in 1896, died June 28, aged 80, of a cerebral accident. He was a member of the Aesculapian Society of the Wabash Valley.

CLARENCE P. WIKOFF, retired, Bloomington, who graduated at Rush Medical College in 1893, died July 10, aged 81.

ORVILLE WILHELMY, Decatur, who graduated at Barnes Medical College, St. Louis, in 1907, died July 17, aged 66. For the past 30 years, he was surgeon for the Illinois Power Company and the Illinois Terminal System; he was a past president of the Macon County Medical Society.

"FOR THE COMMON GOOD"

Lectures Arranged by the Educational Committee of the Illinois State Medical Society:

Lawrence Breslow, Austin Town Hall in Chicago, August 16, on Health Questions Your Pals Ask.

George M. Cummins, Chicago, Winnebago County Home Bureau Units, August 24, Physiologic and Mental Aspects of Geriatrics.

Stanley Stanmar, La Salle, Lacon Woman's Club in Lacon, September 15, on Growing Old Gracefully.

Hugo R. Rony, Chapter AD, P.E.O. Sisterhood, in Chicago, October 2, How Old Is Old?

Lawrence Breslow, Henry H. Nash School P.T.A., in Chicago, October 4, Together We Learn —Through Health.

Paul K. Anthony, Marquette School PTA, October 16, in Chicago, Growth Toward Maturity".

Irving Mizell, Belding PTA in Chicago, October 17, Summer Roundup: What It Means to You.

Lectures Arranged Through the Scientific Service Committee of the Illinois State Medical Society:

Edwin R. Levine, Chicago, La Salle County Medical Society in La Salle, October 12, on Chest Diseases in Office Practice, illustrated.

E. Harold Ennis, Springfield, Whiteside-Lee County Medical Societies in Sterling, October 12, on Use of Estrogens.

John L. Keeley, Chicago, Iroquois County Medical Society in Watseka, October 17, on Surgical Problems of Infancy and Childhood.

Willard O. Thompson, Chicago, Kankakee County Medical Society in Kankakee, October 24, on Use and Misuses of Sex Hormones, illustrated.

Ralph H. Kunstadter, Chicago, Dekalb County Medical Society, October 24, on Problems of Diarrhea in Infancy, illustrated.

Arkell M. Vaughn, Chicago, McDonough County Medical Society in Macomb, October 27, on Surgical Treatment of Varicose Veins, illustrated.

Radio

Your Doctor Speaks over WFJL, Thursday evening, at 7:15, carried the following physicians in transcribed broadcasts:

Carroll Birch, August 3, Ancestors and Heirs.

Edward A. Piszczek, August 10, Infantile Paralysis.

Clement Martin, August 17, Rectal Diseases.

Lindon Seed, August 18, on Goiter.

Harry Oberhelman, August 31, on Gallbladder Disease.

Charles S. Gilbert, September 7, on Diet and Disease.

Lowell T. Coggeshall, September 14, on The Common Cold.

"You and Your Baby" over Station WAAF, Tuesday mornings at 10:30 a.m. presented the following physicians in "live" broadcasts:

John M. Reichert, August 1, Taking the Baby Home.

Eugene T. McEnery, August 8, on Breast Feeding.

Eva J. Line, August 15, The Bottle Fed Baby.

A. Alvin Wolf, substituting for Joseph Greengard, August 22, Baby's First Month.

Here Is Your Doctor over Station WCFL, Sunday mornings, at 11:45 a.m., presented the following physicians in transcribed broadcasts:

William P. Swisher, Evanston, August 6, on What Is A Case History.

Philip Lewin, August 13, on Poliomyelitis.